SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 2: Waste Management

Purpose and Applicability of Regulations

Everyone generates waste on a daily basis and is subject to the waste regulations. When the waste is improperly handled and disposed of (i.e., illegal dumping along roadsides, in the woods, in illegal landfills, in wetlands, in lakes and streams, or by being improperly burned) both surface and groundwater quality, as well as air quality can be impacted. Your legal responsibility as a generator of any quantity of waste extends from "cradle to grave." This covers the time from when the waste is first generated through its ultimate disposal. State and federal court decisions have consistently upheld that legal liability remains with the original generator, in some instances even after disposal of the waste.

Agencies and Their Laws and Rules

Several different agencies are involved with overseeing proper waste management. State agencies include the Waste and Hazardous Material Division (WHMD), Water Bureau (WB), and Air Quality Division (AQD) of the Michigan Department of Environmental Quality (DEQ); the Department of Labor and Economic Growth (DLEG); and the Michigan State Police (MSP). Federal agencies include the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (USDOT). In addition, local entities including wastewater treatment plant authorities, local fire departments, and county health departments may have jurisdiction.

Following are Michigan's common waste regulations overseen by WHMD:

- Solid waste regulations under Part 115 (Solid Waste Management) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), and administrative rules. (Summarized in Chapter 2.2)
- Scrap tire management including transportation, storage, and disposal by tire retailers, scrap tire haulers, and scrap tire collection site owners under Part 169 (Scrap Tires) of Act 451. Local fire departments also have scrap tire jurisdiction under the fire prevention regulations. (Summarized in Chapter 2.2)
- Liquid industrial waste regulations under Part 121 (Liquid Industrial Waste) of Act 451. (Summarized in Chapter 2.3)
- Hazardous waste requirements under Part 111 (Hazardous Waste Management) of Act 451 and administrative rules. (Summarized in Chapter 2.4)

In This Chapter…

- Transportation of hazardous materials which includes both liquid industrial waste and hazardous waste under the Hazardous Materials Transportation Act (Public Act 138 of 1998) and Part 111 of Act 451 administrative rules and Part 121 (Liquid Industrial Waste) of Act 451. (Summarized in Chapter 2.3 and 2.4)
- Disposal of batteries under Part 171 of Act 451
- Medical waste under Part 138 (Medical Waste Regulatory Act) of the Public Health Code (Discussed in Chapter 2.5)
- PCB waste under Part 147 of Act 451 and administrative rules and Part 121 of Act 451 (Summarized in Chapter 6.4)
- Radioactive waste under Part 135 of the Public Health Code and Part 111 of Act 451 administrative rules (See Chapter 10).

Following are federal regulations:

- Federal hazardous waste regulations implementing the federal Resource Conservation and Recovery Act (RCRA) are contained in Title 40, Parts 260-279, of the Code of Federal Regulations (40CFR 260-279).
- Transportation regulations for hazardous materials overseen by USDOT and MSP are contained in 49 CFR Parts 100-199. (See Chapter 4)
- PCB materials and waste regulations overseen by EPA are in the federal Toxic Substances Control Act (TSCA). (See Chapter 6.4)
- Radioactive waste regulations are overseen by the U.S. Nuclear Regulatory Commission (NRC) (See Chapter 10).

2.1 Waste Reduction and Recycling

Different terms are used in regards to waste reduction practices. “Waste minimization” is a term found in RCRA that refers to source reduction and environmentally sound recycling of RCRA hazardous waste. “Pollution prevention” or P2 is a term found in the Pollution Prevention Act of 1990 that refers to source reduction of all toxic wastes, including those released to air, water and land resources. Source reduction includes any practice that reduces the quantity and/or toxicity of pollutants entering a waste stream prior to recycling, treatment, or disposal. Examples include equipment or technology modifications, reformulation or redesign of products, substitution of less toxic raw materials, improvements in work practices, maintenance, worker training, and better inventory control.

When small quantity and large quantity generators of hazardous waste (see Chapter 2.4.3) sign their waste manifest when shipping hazardous waste, they are certifying that as a:

- Large quantity generator, they have a program in place to reduce the volume and toxicity of waste generated to the degree they have determined to be economically practicable and have selected the practicable method of treatment, storage, or disposal currently available which minimizes the present and future threat to human health and the environment. Large quantity generators are required to have a written waste minimization program in place that reduces volume and/or toxicity of hazardous waste and promote recycling of wastes; or as a

- Small quantity generator, they have made a good faith effort to minimize their waste generation and selected the best waste management method that is available and that they could afford.

No matter what waste minimization term is used, you need to know what types of waste and how much waste is being generated before beginning a waste reduction or recycling program, and to determine what waste regulations apply to the facility. Resources to help you in this task include:

- DEQ waste and recycling publications at **www.deq.state.mi.us/pubcenter**.
- Chapter 2.4.1. and 2.4.2 regarding waste determinations and Chapter 12 for pollution prevention tips.
- EPA guidance and numerous tools to help identify hazardous waste and minimization practices are at **www.epa.gov/epaoswer/hazwaste/minimize/index.htm**.
- Retired Engineer Technical Assistance Program (RETAP), a free, nonregulatory, voluntary waste assessment program, is available to Michigan businesses with 500 or fewer employees. Chapter 12 summarizes RETAP services and also provides additional tips on potential savings by incorporating pollution prevention.

Identifying Wastes and Waste Reduction Opportunities

A business owner or manager can conduct a waste survey to properly identify many types and quantities of waste and determine how to reduce waste generation. A survey also helps to identify waste streams that may be a regulated hazardous waste (see Chapter 2.4 for more information). When you conduct your waste survey:

- Tour the whole facility and ask employees questions about work processes and the waste generated. Identify what is regulated as a hazardous waste, what can be managed as a solid waste, and how much waste is generated. Ask for suggestions about how waste could be reduced. Consider all wastes that are being generated from the different facility areas, including the offices.

- Trace all chemical purchases for each step of every process or activity in the facility. Consider whether materials can be substituted that would generate less or no hazardous waste.

- Identify where in-house recovery and reuse of hazardous materials are possible. If you are interested in recycling on-site, see Chapter 2.4 for management requirements for some materials. Review the regulations or contact the WHMD district office (see Appendix C for telephone numbers) to determine if you need to be permitted as a hazardous waste treatment facility. Also, check with the AQD district office to see if you need an air quality permit for your proposed recycling process.

- Observe to see if employees are creating more hazardous waste by mixing other waste with known hazardous waste. For example, your facility can reduce its volume of hazardous waste by not placing nonhazardous paints in the same container as waste solvents.

- Determine if different wastes are being mixed together. This mixing usually makes recycling difficult, if not impossible, and disposal more expensive.

- Develop and maintain accurate inventory control of all products. This helps to eliminate excessive inventory. Buying in bulk or ordering on a schedule will not be cost effective if the product has to be disposed of because its shelf life expired.

If the facility finds it has unwanted materials that can be used as a product, it might be possible to find another company looking for the material by using a Materials Exchange. Go to **www.michigan.gov/deqrecycling** for links. This is also a tool to find materials you could use.

Once you know where the wastes are being generated, you may be able to reduce disposal costs by implementing waste reduction and recycling programs. Along with saving money on disposal costs, you might save money by purchasing less material and even earn money by selling the collected materials. You need to have both management and worker support to make these programs work.

Waste reduction involves implementing activities that result in less waste being generated. These activities include the following:

- Change processes so less scrap is created.
- Purchase supplies that have less packaging.
- Have materials shipped in returnable and reusable containers.
- Use materials on a “first in, first out” basis so products don’t become too old to use.
- Replace disposable materials with reusable and recyclable materials.
- Establish an incentive program that encourages workers to suggest ways to reduce waste.
- Train employees in waste reduction methods.
- Install reclamation units to reduce the amount of waste needing disposal. For example, recover spent solvents from parts washers.

Recycling involves converting materials from the waste stream into other usable goods. The first step for facilities involves the collection of those materials. If the materials cannot be used in-house, then the collected materials are marketed through private brokers or local community recycling programs. Several areas in Michigan now have reuse centers that offer these materials for community or school activities.

Check with your broker or local program to find out what they accept, how the materials must be prepared, and other collection details. You may need to use different brokers or several different recycling programs to market your collected materials because the individual broker or program might not handle the type or volume of material you have.

Commonly collected materials include:

- Drums and other containers
- Glass
- Paper, including office paper and corrugated cardboard
- Scrap metal
- Wood pallets
- Other materials as described in Chapter 2.4.9

To find companies that accept the recyclable materials you collect, search the **"Recycled Materials Market Directory"** various categories via the DEQ's web site at **www.michigan.gov/deqrecyling** (select "Online Services"). If you do not have access to the Internet or have a material not listed, call (800) 662-9278 and ask for the recycling coordinator.

SPECULATIVE ACCUMULATION AND SOLID WASTE EXEMPTIONS

Recycling of solid waste is regulated under Part 115 of Act 451 and administrative rules. Discuss recycling and other waste requirements with the WHMD district office (Appendix C). Materials must not be accumulated speculatively for recycling purposes. At least 75% of the collected material must be recycled into marketable raw materials or new products, or transferred to a different site for recycling within 1 year, or 3 years if it is low-hazard industrial waste.

It is possible to petition a waste to be considered for an exemption as a site or source separated recyclable material: For example, see the exemptions for:

- Scrap Wood
- Gypsum Drywall
- Agricultural use of materials (approved on individual basis)

Some solid wastes may meet the definition of "inert materials" and may be used on land if all the conditions in R 299.4114 are met. See the rule for specific requirements.

- Uncontaminated brick, masonry, pavement and broken concrete uses as fill, riprap, slope stabilization or other construction. Concrete can not have exposed rebar.
- Excavated soil.
- Rock.
- Trees, stumps, or other land clearing debris.
- Some low hazardous industrial waste uses.
- Chipped tires.
- Other materials approved by WHMD.
  - Scrap Tire Designation of Inertness #04-1-001

2.2 Solid Waste Disposal

No matter how effective your waste reduction and recycling programs are, you probably will still need to dispose of some solid waste. Solid waste includes garbage, rubbish, yard waste, ashes, incinerator ash and residue, industrial sludges, and solid commercial and industrial waste. Solid waste management as discussed in this section does not pertain to hazardous waste that is in a solid form. It may be possible that some waste may be characterized as low-hazardous industrial waste which allows the option for landfill disposal.

Examples of solid waste that usually require disposal include: nonrecyclable office paper, break room waste such as discarded food, nonrecyclable packaging materials including empty containers (see Chapter 2.4.1.d.2 for definition of "empty"), and other materials which are not hazardous waste.

Wastes prohibited from landfill disposal under Part 115 of Act 451 include:

- Used oil
- Whole tires
- Liquid waste
- Beverage containers
- Lead acid batteries
- Yard clippings (see the registered composting facility information at **www.michigan.gov/deqwaste** "Solid Waste" "Composting" for facilities managing more than 200 cubic yards of yard clippings
- Medical waste
- Sewage
- Asbestos unless landfill meets specific requirements
- Empty drums unless crushed
- Hazardous waste from small quantity and large quantity generators (see Chapter 2.4)
- Low level radioactive waste
- PCB waste unless landfill meets specific requirements

For more information about banned waste, go to **www.michigan.gov/deqprohibitedwaste**.

Open dumping and open burning (see Chapter 2.2.1) of business waste is prohibited.

Before solid waste is hauled to a licensed disposal facility:

- Store it in leak-proof, covered containers and control odors. This will help keep the waste from blowing away, prevent access by rodents and other animals, and reduce odor problems.
- Check if your local authorities have an ordinance that requires a privacy-type fence around the dumpster.
- Discuss using solid waste piles and necessary permits with your WHMD district office (Appendix C).
- Check if the licensed disposal facility accepts your type of waste. They may request documentation like test results showing it is not a hazardous or liquid waste.

Solid waste must be disposed of at licensed disposal facilities.

- You can haul your own waste to a licensed landfill, incinerator, or transfer/processing facility. If you are considering shipping your solid waste out of your county, check with your county planning agency (see the list of Designated County Solid Waste Management Planning Agencies at **www.michigan.gov/deqwaste** **"Solid Waste" "Solid Waste Planning"**) to confirm that is acceptable in your county's, and in the receiving county's, solid waste management plans. Those plans identify where solid waste can be transported for disposal. OR,
- Contract with a solid waste hauler to transport your solid waste to an approved facility.

Currently there are no WHMD licensing requirements for haulers of solid waste (except scrap tires–see Chapter 2.2.2), but there are requirements regarding the waste carrying portion of the vehicle. See the *Solid Waste Hauler Resources* at **www.michigan.gov/deqwaste** **"Solid Waste**". Some counties do require a local solid waste hauler license. You should know how the hauler handles and disposes of waste because you can be held liable for damages and cleanup costs if the waste is

improperly managed. You may contact your WHMD district office (see Appendix C for phone numbers) about:

- Shipping solid waste out-of-county.
- Handling sludge from industrial processes, and trench or drain cleanout residue under either the solid waste rules or as liquid industrial waste (see Chapter 2.3).
- Whether or not your waste is regulated as a solid waste, or how to properly manage it.

Manifests are not required for hauling and disposing of solid waste, with the exception of scrap tires (see Chapter 2.2.2). Although you don't have to manifest solid waste, you may want to keep records of when, where, and how much solid waste was removed from your business. This practice gives you an accurate record of waste disposal for management purposes and is valuable if a liability question arises.

2.2.1 Open Burning

Open burning of business trash and any burning that creates smoke or odor nuisances are prohibited throughout Michigan under the air quality regulations. Open burning is where smoke and air pollutants are released directly into the air. In addition, buildings may not be burned for the purpose of demolition, unless it has been approved as part of a fire department training program. On-site incineration of some solid waste is allowed if a permit is obtained from DEQ's AQD and approved under local laws. Contact your AQD district office (see Appendix C) for more details on burning solid waste (also see Chapter 1.2).

Open burning of brush, logs, stumps, and trees is regulated by the AQD; the WHMD; the Department of Natural Resources (DNR); and in many cases, local authorities. If you are doing any landscaping on your property and want to burn the wood waste, you must obtain permission from the governing agency for that area. There are many Michigan areas where open burning is prohibited. Brush and trees may not be burned in portions of Bay, Calhoun, Delta, Genesee, Lapeer, Macomb, Manistee, Midland, Monroe, Muskegon, Saginaw, St. Clair, and Wayne Counties. For other areas in the Upper Peninsula and northern Lower Peninsula, contact the local DNR office or U.S. Forest Service office regarding open burning. In the southern Lower Peninsula, contact the local fire department for a burn permit. Grass clippings and leaves are not allowed to be burned in municipalities having a population of 7,500 or more unless the local governing body has specifically enacted an ordinance authorizing it. Contact local authorities about their ordinances. More information about open burning and list of communities with local ordinances submitted to the WHMD is available at the DEQ's open burning web site **www.michigan.gov/deqair** (select "Open Burning Information").

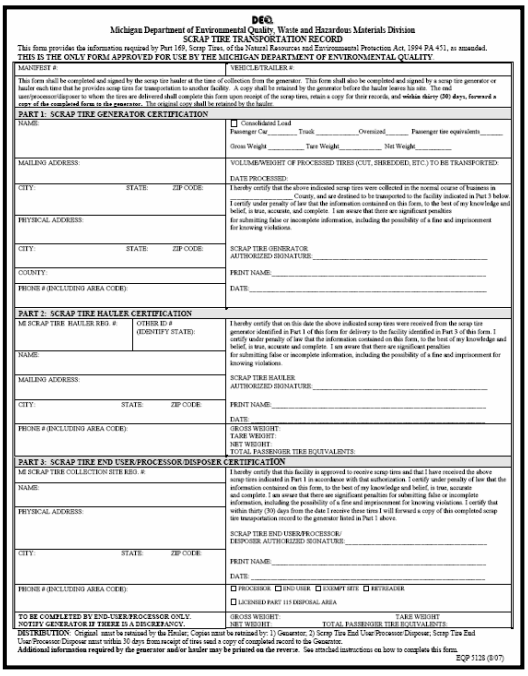
2.2.2 Scrap Tires

It is illegal for anyone to discard scrap tires on property which is not in compliance with storage, bonding, and registration requirements under Part 169 (Scrap Tires) of Act 451. Scrap tires include vehicle tires and also hi-low or forklift and other equipment discarded tires. Scrap tire information is available at **www.michigan.gov/deqwaste** (select "Scrap Tires").

Basic requirements for scrap tire generators:

- Store scrap tires in a safe manner at the location of generation to reduce safety and fire risks. Check with the local fire department about local requirements. If you have 500 or more scrap tires, you must register as a scrap tire collection center and meet additional storage requirements. Requirements and common violations can be found at the above web site.
- Ensure scrap tires are taken to registered scrap tire collection sites and scrap tire processors such as licensed energy recovery facilities, reuse, retreading, or recycling facilities. You can:
    - Haul 7 or fewer of your own tires without being a registered hauler but make sure the loads are secure so tires do not fall out of the vehicle. If you haul more than seven of your own tires, you must register as a hauler.
    - Hire a currently registered scrap tire hauler for the removal of scrap tires. Lists of registered haulers and sites where to haul tires is at the above web site (under the Information heading select "List of Facilities). Many solid waste haulers won't accept used tires in the trash because whole scrap tires can no longer be landfilled. If you are offered extremely low prices for scrap tire disposal, you might want to question whether the hauler and/or disposal facility is simply accumulating the tires without intending to comply with the regulations.
- Haulers must register annually with the WHMD. Haulers must carry their registration, which includes the expiration date and a list of collection sites where they can take the tires, and the original manifest when transporting scrap tires. In addition, they must visibly display their registration number on the vehicle transporting the tires. Compare the disposal site listed on the manifest to the sites listed on the hauler's current registration. If a hauler is not taking the scrap tires to a disposal site listed on its registration, question it before shipping your scrap tires.
- Obtain and keep following copies of the scrap tire manifest for each shipment of scrap tires at least 3 years after shipment:
    - From the scrap tire hauler at time of each pickup: signed copy of the Scrap Tire Transportation Record (forms EQP 5128 or EQP 5128a-the Consolidated Load Scrap Tire Transportation Record)
    - From the end user, processor, or disposer within 30 days of them receiving the scrap tires: a copy of the Transportation Record signed by them

  You can call the Scrap Tire Program at (517) 335-4035 or the WHMD district office for information about the compliance status of a hauler or disposal site, or if you have questions about becoming a hauler yourself.



DEQ
Michigan Department of Environmental Quality, Waste and Hazardous Materials Division
SCRAP TIRE TRANSPORTATION RECORD

This form provides the information required by Part 169, Scrap Tires, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
THIS IS THE ONLY FORM APPROVED FOR USE BY THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

MANIFEST #:
VEHICLE/TRAILER #:

This form shall be completed and signed by the scrap tire hauler at the time of collection from the generator. This form shall also be completed and signed by a scrap tire generator or hauler each time that he provides scrap tires for transportation to another facility. A copy shall be retained by the generator before the hauler leaves his site. The end user/processor/disposer to whom the tires are delivered shall complete this form upon receipt of the scrap tires, retain a copy for their records, and within thirty (30) days, forward a copy of the completed form to the generator. The original copy shall be retained by the hauler.

PART 1: SCRAP TIRE GENERATOR CERTIFICATION

NAME:
☐ Consolidated Load
Passenger Car_____ Truck _____Oversized_____ Passenger tire equivalents_____
Gross Weight _____ Tare Weight_____ Net Weight_____

MAILING ADDRESS:
VOLUME/WEIGHT OF PROCESSED TIRES (CUT, SHREDDED, ETC.) TO BE TRANSPORTED:

DATE PROCESSED:

CITY: STATE: ZIP CODE:
I hereby certify that the above indicated scrap tires were collected in the normal course of business in _____ County, and are destined to be transported to the facility indicated in Part 3 below. I certify under penalty of law that the information contained on this form, to the best of my knowledge and belief, is true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of a fine and imprisonment for knowing violations.

PHYSICAL ADDRESS:

CITY: STATE: ZIP CODE:
SCRAP TIRE GENERATOR
AUTHORIZED SIGNATURE:_____

COUNTY:
PRINT NAME:_____

PHONE # (INCLUDING AREA CODE):
DATE:_____

PART 2: SCRAP TIRE HAULER CERTIFICATION

MI SCRAP TIRE HAULER REG. #: OTHER ID # (IDENTIFY STATE):
I hereby certify that on this date the above indicated scrap tires were received from the scrap tire generator identified in Part 1 of this form for delivery to the facility identified in Part 3 of this form. I certify under penalty of law that the information contained on this form, to the best of my knowledge and belief, is true, accurate and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of a fine and imprisonment for knowing violations.

NAME:

MAILING ADDRESS:
SCRAP TIRE HAULER
AUTHORIZED SIGNATURE:_____

CITY: STATE: ZIP CODE:
PRINT NAME:_____

DATE:_____

PHONE # (INCLUDING AREA CODE):
GROSS WEIGHT:
TARE WEIGHT:
NET WEIGHT:
TOTAL PASSENGER TIRE EQUIVALENTS:

PART 3: SCRAP TIRE END USER/PROCESSOR/DISPOSER CERTIFICATION

MI SCRAP TIRE COLLECTION SITE REG. #:
I hereby certify that this facility is approved to receive scrap tires and that I have received the above scrap tires indicated in Part 1 in accordance with that authorization. I certify under penalty of law that the information contained on this form, to the best of my knowledge and belief, is true, accurate and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of a fine and imprisonment for knowing violations. I certify that within thirty (30) days from the date I receive these tires I will forward a copy of this completed scrap tire transportation record to the generator listed in Part 1 above.

NAME:

PHYSICAL ADDRESS:
SCRAP TIRE END USER/PROCESSOR/
DISPOSER AUTHORIZED SIGNATURE:_____

CITY: STATE: ZIP CODE:
PRINT NAME:_____

DATE:_____

PHONE # (INCLUDING AREA CODE):
☐ PROCESSOR ☐ END USER ☐ EXEMPT SITE ☐ RETREADER
☐ LICENSED PART 115 DISPOSAL AREA

TO BE COMPLETED BY END-USER/PROCESSOR ONLY.
NOTIFY GENERATOR IF THERE IS A DISCREPANCY.
GROSS WEIGHT: TARE WEIGHT
NET WEIGHT: TOTAL PASSENGER TIRE EQUIVALENTS:

DISTRIBUTION: Original must be retained by the Hauler. Copies must be retained by: 1) Generator, 2) Scrap Tire End User/Processor/Disposer, Scrap Tire End User/Processor/Disposer must within 30 days from receipt of tires send a copy of completed record to the Generator.
Additional information required by the generator and/or hauler may be printed on the reverse. See attached instructions on how to complete this form.
EQP 5128 (8/07)

2.3 Liquid Industrial Waste

Note: Part 121 revisions became effective February 20, 2008. Some of the revisions include:

- **An exemption for residues remaining in empty containers**
- **An exemption for vegetable oils and animal fats being used for biofuel production**
- **Establish storage time limitations at designated facilities**
- **Change in release reporting requirements if already reported under another state regulation**
- **Corrections for references to other regulations**
- **Clarifications for septage haulers also transporting liquid industrial waste**
- **Adoption of the uniform manifest**

The liquid industrial waste inspection checklist is available at **www.deq.state.mi.us/documents/deq-whm-hwrp-eqp5191.pdf** if the facility wants to do an internal compliance evaluation.

Liquid industrial waste includes any waste that meets all the following conditions:

- Fails the paint filter test (See Chapter 2.4.2.c), and
- Is not exempted under Part 121 of Act 451, and
- Is not regulated as hazardous waste (see Chapter 2.4). Although hazardous waste generated by a conditionally exempt small quantity generator (CESQG) is not required to be manifested under Part 111 of Act 451, if it is a liquid the CESQG still must manifest it under the liquid industrial waste regulations and use the hazardous waste codes.

Common examples of liquid industrial waste include used oil that is being recycled, storm sewer and sanitary sewer clean-out residue, grease trap clean-out residue, industrial wastewater, uncontaminated precipitation removed from secondary containment structures, antifreeze that isn't a hazardous waste, some off-specification commercial chemical products, and other liquid waste.

Liquid industrial waste management is overseen by several entities:

- The WHMD oversees management at liquid industrial waste generator sites, the permitting and registering of liquid industrial waste transporters, and destination facility requirements.
- The WB oversees the discharge and permitting of liquid wastes into surface waters and into groundwater (see Chapter 3).
- Local publicly owned treatment works if the business is connected to a municipal sewer system. You must obtain permission from the sewer authority before discharging waste to the sewer.
- Other local agencies, which vary between communities, which oversee local ordinances. Authority is often under the county or city zoning or building office, the public health department's environmental health section, or fire department.
- The Michigan State Police, Traffic Safety Division and USDOT oversee transportation requirements if the liquid waste is a USDOT hazardous material (see Chapter 4).

- Insurance companies may have requirements for storage and shipping.

If you generate liquid industrial waste, you need to:

- Characterize the waste to determine if non hazardous or hazardous (see Chapter 2.4.2).
  - ✓ Keep records of waste evaluations and other information used to determine the type of waste at least three years after the waste is shipped for treatment, storage, or disposal.
- Meet storage requirements:
  - ✓ Protect containers from weather, fire, physical damage and vandals.
  - ✓ Containers must be labeled so workers know what is in it (e.g. "Used Oil" - see Chapter 2.4.9.a for more used oil requirements and see Chapter 13).
  - ✓ Manage waste to prevent releases into air, soil, drains, surface water or groundwater
    - Containers must be maintained in good condition.
    - Any leaking containers must be replaced.
    - Containers must be kept closed except when adding or removing waste.
    - Containers must be compatible with the type of waste being stored in them. The MSDS for the virgin ingredients may provide some recommendations or see websites like **www.flw.com/material/index.html**.
    - Incompatible wastes must not be placed in the same container.
  - ✓ Liquid industrial waste that has a flashpoint of or above 140 degrees and below 200 degrees Fahrenheit and stored in aboveground containers and tanks would also be regulated as a flammable and combustible liquid by the WHMD and/or by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids, and the local municipality's fire prevention code (see Chapters 4, 34 and 38 for more information).
  - ✓ Liquid industrial waste in an underground storage tank that is a regulated substance under Part 211 (Underground Storage Tanks) of Act 451 would have additional requirements under the tank regulations (see Chapter 4).
  - ✓ There are no state time limits requirements on storing liquid industrial waste at your facility, but local ordinances may have limits.
- If operating an on-site reclamation, treatment, or disposal facility, keep records of all liquid industrial waste produced and reclaimed, treated or disposed at the facility at least three years unless facility is under investigation which requires them to be kept longer. Many companies keep records indefinitely to document they have properly managed their waste when they want to sell the business or property.
- If liquid industrial waste is treated, stored or disposed of in a surface impoundment, obtain the applicable Part 31 (Water Resources Protection) of Act 451 discharge permit (see Chapter 3) and manage leachate appropriately. Discuss specific requirements with the WHMD district office (see Appendix C).
- Obtain a site identification number when shipping waste off-site with a manifest if one is not already assigned to the site (see Chapter 2.4.4)

- Hire a permitted and registered transporter to take the waste to an appropriate disposal facility (see Chapter 2.4.10) or meet the requirements to haul the company's own waste (see Chapter 2.4.5)
- Use the Uniform Hazardous Waste Manifest when shipping, or meet alternative shipping record requirements, as described in Chapter 2.4.5. Use the following liquid industrial waste codes in Table 2.1 on the manifest, but if the waste is a hazardous waste that meets an exemption or is generated by a CESQG, use the hazardous waste codes that are included in Part 2 of the hazardous waste rules. When a consolidated manifest is being used for the shipment, the record provided to the generator may include either the waste code or a description of the waste. See Chapter 2.4.5.a for more information about consolidated manifests.

Table 2.1
LIQUID INDUSTRIAL WASTE CODES

If the waste is regulated under Part 121 and is a hazardous waste, the hazardous waste code must be utilized. Following are the required non-hazardous liquid industrial waste (___L) and consolidated waste codes (___LC) to put in Box 13 on the manifest:

Mixed Solvents	007L	007LC
Pharmaceutical	014L	014LC
Crankcase Oil	017L	017LC
Coolants and Water Soluble Oils	019L	019LC
Other Oil	021L	021LC
Brine	022L	022LC
PCB	026L	026LC
Other wastes *	029L	029LC
Antifreeze	030L	030LC
Storm Sewer Cleanouts	031L	031LC
Sanitary Sewer Cleanouts	032L	032LC
X-Ray/Photo Cleaning Solutions	033L	033LC
Water Based Cleaning Solutions	034L	034LC
Car Wash Sludges	035L	035LC
Grease Trap Wastes	036L	036LC

- Report releases to the Pollution Emergency Alerting System at (800) 292-4706 that could threaten the public health, safety, or welfare, or environment, or that has reached surface water or groundwater unless the release was already reported as required under a different state regulation. Prepare a written report summarizing incident and response measures and keep on-site and submit copy to DEQ if requested. A summary table of state and federal regulations that require release reporting is included in Chapter 6. Some liquid industrial waste may be subject to the Part 5 rules if it contains polluting materials in concentrations of 1% or more.
- Cleanup all spills (see Chapter 6).
- Depending on the liquid waste, emergency planning may be required under other regulations (e.g. Part 5 rules) if threshold management quantities are reached (see Chapter 6).

- If using pump and haul tanks, see the Liquid Nonhazardous Waste Holding Tank guidance for more information.
- If emptying tanks or containers, see the Emptying Tanks or Containers guidance for more information.

TABLE 2.2 LIQUID INDUSTRIAL WASTE GENERATOR SUMMARY (includes most used oil)

	Amount generated in calendar month	Maximum amount that can be accumulated on-site	Maximum time period before waste must be shipped
Liquid Industrial Waste and Used Oil Generator	Any amount[1]	No maximum amount under state regulations.[2] If the generator is also a designated facility there is 1 year storage limit.	No state time limit as long as containers in good shape and closed, but check local ordinances for any time limits.

[1] See Parts 111 and 121 for possible liquid industrial waste exemptions.

[2] Other regulations requiring containment and emergency planning may apply when threshold management quantities are met e.g. federal Spill Prevention Control and Countermeasure (SPCC) for oils and state Part 5 rules "Spillage of Oil and Polluting Materials" (see Chapters 4 and 6) and any local ordinances.

2.4 Hazardous Waste

Note: The most recent hazardous waste rule amendments became effective March 17, 2008. The revised rules and a color strike/bold version that shows the federal changes in red text and the state-initiated changes in blue text is available on line. Amendments relating to the federal RCRA changes include: air emission standards, universal wastes, wastewater treatment exemptions, hazardous waste combustors, and burden reduction initiatives. State-initiated amendments pertain to hazardous waste identification and listing, hazardous waste exemptions, universal wastes, manifesting, consistency with state's storage and handling of flammable and combustible liquids regulations, construction permit application content, and updates to the versions of other regulations adopted. The rules now adopt the 2006 editions for 40 CFR Parts 260-299. See R 299.11003 for specific dates of the adopted federal regulations.

The hazardous waste inspection checklists are available at **www.michigan.gov/deqwaste "Hazardous and Liquid Industrial Waste" "Hazardous and Liquid Industrial Waste Management"** if the facility wants to do an internal compliance evaluation.

All waste generators except households are required by law to:

- Determine if any of their waste is hazardous waste.
- Keep records of waste evaluations and other information used to determine the type of waste at least three years after the waste is shipped for treatment, storage, or disposal.
- Properly manage the waste.

It is highly recommended you develop a record keeping system where all the waste determination information, manifests, land disposal restrictions records, reports, contingency

plans, training records etc. are filed so you can easily find and provide these documents upon an inspection.

When reading this guidebook, do not confuse the term “hazardous waste” with “hazardous material.” Each term has specific regulatory definitions and requirements. All hazardous waste shipped with a manifest is also a USDOT hazardous material. There are some wastes that are not regulated as a hazardous waste, yet are regulated as a hazardous material. The following information discusses the general requirements regarding hazardous and universal waste. More detailed information is provided for common waste streams in Chapter 2.4.9. The specific requirements that you must follow depend upon the quantities of hazardous waste generated and accumulated within a specific time period at your business. This chapter focuses on generator requirements and not hazardous waste treatment, storage and disposal facilities (TSDF) and transporter requirements. If you have any questions about hazardous waste management, call your environmental consultant or the WHMD district office to discuss applicable requirements.

2.4.1 Defining Hazardous Waste

Federal and state regulations define wastes as hazardous if they are either included on specific lists or exhibit certain hazardous characteristics. Hazardous wastes have been determined to be a threat to human health or the environment. Hazardous wastes have specific numbers assigned to the different constituents or processes that generate the waste. Michigan regulates more hazardous wastes than what is included in the federal regulations. Wastes that are included in both the federal and state regulations have an EPA waste number which begins with a letter followed by 3 digits and the additional Michigan hazardous waste numbers begins with the 3 digits and ends with the letter. There are some wastes that can have several waste numbers that apply. Regulations allow businesses the option of handling some waste as a “universal waste” instead of managing them as a hazardous waste. Universal waste management is further discussed in Chapter 2.4.1.c and in the following sections. If you have waste containing radioactive materials, see Chapter 10.

2.4.1.a Listed Waste

Listed waste includes waste materials listed by name or generation source on the federal and Michigan lists of hazardous waste. If listed waste is mixed with other waste, then that mixture is also considered a listed waste under the mixture rule, unless it meets one of the regulatory exclusion identified in R 299.9203(7). These excluded wastes are still subject to land disposal restrictions (see Chapter 2.4.5.c).

You need to know the chemical names, and in some instances the chemical concentrations, for the type of waste produced and/or the process used to determine if it is a listed waste. It is necessary to review the regulations for the complete description of these listed wastes.

- Waste from listed nonspecific sources - also referred to as the “F” list. The “F” list includes waste from common industrial and manufacturing processes. Many manufacturers have F001-F005 spent solvents. These solvents must contain the constituents included in the regulatory descriptions, and if found in a mixture or blend, must also meet the applicable concentration level before it was used. Besides knowing the constituents of a solvent, proper characterization of “F” solvent waste also depends on how the solvent was used. Depending on the manufacturing activities, other “F” wastes may also be generated. A few of those “F” wastes that have an (H) included in their hazard code are also considered acutely hazardous. Michigan has the same F list as the federal regulations.

- Waste from listed specific sources - also referred to as the “K” list. Most Michigan manufacturers do not generate “K” wastes. Most Michigan “K” waste is from the iron and steel production and petroleum refining industries. Michigan has the same federal K list and an additional state K waste list.
- Discarded commercial chemical products and spill residues - also referred to as the “P” and “U” lists. These discarded chemicals used by industry would only be a “U” or “P” waste if the listed chemical is the sole active ingredient in the product. Sole active ingredient means that the chemical is the only ingredient serving the function of the formulation. For example, if you use technical grade toluene for cleaning, this is a U220 waste if the product was discarded before being used. It is a F005 waste if it was used for cleaning and then is discarded. Businesses have “P” or “U” wastes only if disposing of unused or off-spec chemicals or when cleaning up a spill of these listed chemical products and/or chemical intermediates having the generic names listed. Pharmaceutical industries may also generate U and P wastes, especially when they are involved with take back programs with hospitals, pharmacies, and other medical facilities. Chemicals included on the “P” list are considered acutely hazardous. “U” wastes include toxic chemicals and chemicals that also display other characteristics such as ignitability. Michigan has the same federal P and U lists and has an additional state U waste list.

2.4.1.b Characteristic Waste

Waste exhibiting any of five characteristics identified in the Michigan and federal regulations is also defined as a hazardous waste. These wastes have an EPA or Michigan hazardous waste number that begins or ends with a “D” or “S”. The five characteristics are:

Ignitable - Starts burning easily; liquids with a flashpoint below 140 degrees Fahrenheit, solids that spontaneously ignite, oxidizing materials, and ignitable compressed gases. The rule amendments changed the definition of ignitable compressed gas to those meeting the criteria in 40 CFR 261.21(a)(3) instead of the reference to USDOT regulations. This includes gases that form flammable mixtures in air. Examples include mineral spirits, methyl isobutyl ketone and other solvents, solvent-based paints, solvent- soaked rags, gasoline, cleaning fluids, naphtha, sludges containing petroleum, and ignitable compressed gas like hydrogen, propane, and acetylene. These wastes have a hazardous waste number of D001.

Corrosive - Liquids that dissolve steel or aqueous wastes with a pH less than or equal to 2.0 or greater than or equal to 12.5. Examples include caustics like alkaline cleaners and battery acid. These wastes have a hazardous waste number of D002.

Reactive – Undergoes rapid or violent chemical reaction and necessitates special handling requirements. Examples include organic peroxides, cyanides, sulfides, and explosives. These wastes have a hazardous waste number of D003.

Toxic - Poisonous to humans and other living organisms. These wastes become regulated as a hazardous waste when their constituents meet or exceed a certain concentration level. See Table 2.3 for the list and regulated concentrations of toxic hazardous waste. Hazardous waste numbers are assigned to specific toxic chemicals and include D004 through D043.

These are sometimes called toxicity characteristic leaching procedure (TCLP) wastes because that is the laboratory method used to determine the concentration level (see Chapter 2.4.2.c). Fluorescent lamps, dry cell batteries, various metal-bearing solutions, solvents, mercury switches, lead tire weights, some pesticides, some medical related wastes

including mercury thermometers and older antiseptics containing mercury from medical kits, and other organic chemicals are common materials that may be toxic wastes. An example of a D009 hazardous waste includes mercury from electric lamps or switches that have a TCLP test concentration result of 0.2 milligrams per liter (mg/l) or more of mercury and are not being managed under the universal waste rule (see Chapter 2.4.1.c). Methyl ethyl ketone (MEK) waste has a waste number of D035 if the TCLP concentration is 200 mg/l or more of MEK. MEK can also be an "F" waste if it meets any of those regulatory definitions.

Severely toxic – These Michigan hazardous wastes contain 1.0 ppm or more of a severely toxic material. These materials are regulated at quantities of one kilogram, which is just over two pounds or more. The hazardous waste numbers include 001S through 007S. It is unlikely for most businesses to have severely toxic wastes.

TABLE 2.3 Characteristic Hazardous Wastes for Toxicity
(if waste meets or exceeds the listed concentration)

EPA Hazardous Waste Number	Chemical Abstract Services Number	Material	Extract Concentration milligrams per liter
D004	7440-38-2	Arsenic	5.0
D005	7440-39-3	Barium	100.0
D018	71-43-2	Benzene	0.5
D006	7440-43-9	Cadmium	1.0
D019	56-23-5	Carbon tetrachloride	0.5
D020	57-74-9	Chlordane	0.03
D021	108-90-7	Chlorobenzene	100.0
D022	67-66-3	Chloroform	6.0
D007	7440-47-3	Chromium	5.0
D023	95-48-7	o-Cresol	200.0**
D024	108-39-4	m-Cresol	200.0**
D025	106-44-5	p-Cresol	200.0**
D026	--------	Cresol	200.0**
D016	94-75-7	2,4-D (2,4-Dichlorophenoxyacetic Acid)	10.0
D027	106-46-7	1,4-Dichlorobenzene	7.5
D028	107-06-2	1,2-Dichloroethane	0.5
D029	75-35-4	1,1-Dichloroethylene	0.7
D030	121-14-2	2,4-Dinitrotoluene	0.13*
D012	72-20-8	Endrin (1,2,3,4,10,10-hexachloro-1,7-Epoxy-1,4,4a,5,6,7,8,8a octahydro-1,4-endo, endo-5,8-dimenthano naphthalene)	0.02
D031	76-44-8	Heptachlor (and its Epoxide)	0.008
D032	118-74-1	Hexachlorobenzene	0.13*
D033	87-68-3	Hexachlorobutadiene	0.5
D034	67-72-1	Hexachloroethane	3.0
D008	7439-92-1	Lead	5.0
D013	58-89-9	Lindane (1,2,3,4,5,6-hexa-chlorocyclo-hexane, gamma isomer)	0.4
D009	7439-97-6	Mercury	0.2
D014	72-43-5	Methoxychlor (1,1,1-trichloro-2,2-bis(p-methoxyphenyl)ethane)	10.0
D035	78-93-3	Methyl ethyl ketone	200.0
D036	98-95-3	Nitrobenzene	2.0
D037	87-86-5	Pentachlorophenol	100.0
D038	110-86-1	Pyridine	5.0*
D010	7782-49-2	Selenium	1.0

(Table continued on next page)

TABLE 2.3 Characteristic Hazardous Wastes for Toxicity (continued)			
D011	7440-22-4	Silver	5.0
D039	127-18-4	Tetrachloroethylene (also called perchloroethylene)	0.7
D015	8001-35-2	Toxaphene ($C_{10}H_{10}C1_8$, Technical chlorinated camphene, 67-69 percent chlorine)	0.5
D040	79-01-6	Trichloroethylene	0.5
D041	95-95-4	2,4,5-Trichlorophenol	400.0
D042	88-06-2	2,4,6-Trichlorophenol	2.0
D017	93-72-1	2,4,5 TP Silvex (2,4,5-Tri-chlorophenoxypropionic acid)	1.0
D043	75-01-4	Vinyl chloride	0.2

* Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
**IF o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

2.4.1.c Universal Waste

Although Michigan originally adopted the universal waste rule in October 1996 and have added materials, many companies are either unaware of this alternative management option or have chosen not to manage these wastes under that rule.. The universal waste rule gives facilities the choice of handling the following identified items as a universal waste:

- Electric lamps including fluorescent, high intensity discharge, sodium vapor, mercury vapor, neon, and incandescent lamps. Broken lamps are not universal wastes. (See Chapter 2.4.9.e)
- Batteries, including dry cell (See Chapter 2.4.9.d) and lead acid types (See Chapter 2.4.9.c which also discusses another lead acid battery management option)
- Devices containing only elemental mercury, such as thermostats, switches, thermometers, and other devices.
- Pesticides, including certain suspended, canceled, or unused pesticides.
- Consumer electronics including computers, televisions and other equipment containing circuit boards. (See Chapter 2.4.9.m, new CRT recycling requirements)
- Pharmaceuticals.
- Antifreeze (New option. See Chapter 2.4.9.o)

There are two levels of universal waste handlers – a Small Quantity Handler and a Large Quantity Handler. Do not confuse universal waste handlers with the hazardous waste generator status levels of Small Quantity Generator and Large Quantity Generator. See Chapter 2.4.4, 2.4.5, 2.4.7, 2.4.8 and 2.4.9 for more handler requirements. Requirements for universal waste transporters and destination facilities are not discussed in this guidebook.

If a company chooses to manage these waste streams as a universal waste, then this quantity is not included when determining their hazardous waste generator status (see Chapter 2.4.3). For some companies, this may allow them to reduce their hazardous waste generator status level. For example, a Large Quantity Generator that manages part of its hazardous waste stream as universal waste may be able to become a Small Quantity Generator and be subject to fewer hazardous waste regulations and lower waste handler fees.

Table 2.4 SUMMARY OF UNIVERSAL WASTE HANDLER CATEGORIES		
	Small Quantity Handler (SQH)	**Large Quantity Handler (LQH)[1]**
Amount of all universal waste accumulated at any time	Less than 5,000 kilograms (11,000 pounds)	5,000 kilograms (11,000 pounds) or more
Maximum amount that can be accumulated on-site	Less than 5,000 kilograms (11,000 pounds)	No limit
Maximum time period before waste must be shipped	1 year after generated or received from another facility	1 year after generated or received from another facility
Notification Required [2]	No, unless universal waste is a liquid then use form **EQP5150**. See Chapter 2.4.4	Yes, use form **EQP5150** See Chapter 2.4.4
Employee Training & Emergency Response	Yes, see Chapters 2.4.12 and 6	Yes, see Chapters 2.4.12 and 6
Permitted and registered transporters required to be used [2]	No, unless liquid which is managed as liquid industrial waste (Chapter 2.4.10)	No, unless liquid which is managed as liquid industrial waste (Chapter 2.4.10)
Manifests[3] or shipping papers[2]	If liquids, either manifest or alternative records. See Chapter 2.4.5.a and b.	If liquids, either manifest or alternative records. See Chapter 2.4.5.a and b.
Export/Import	Additional federal notification and reporting requirements, see Chapter 2.4.5.d	Additional federal notification and reporting requirements, see Chapter 2.4.5.d

[1] Once the LQH status is reached, the business must keep that designation through the end of that calendar year.

[2] Universal wastes that are a liquid would need to be hauled as liquid industrial waste. In addition, some universal waste may be regulated as USDOT hazardous material if it meets the criteria specified in 49 CFR 173.2. For example, shipments of more than one pound of mercury per package, and many pesticides, are regulated USDOT hazardous materials. The amount of mercury varies in the different devices. This material must be packaged, labeled, marked, placarded, and transported with the proper shipping papers according to USDOT requirements. Contact the Michigan State Police Motor Carrier Division at (517) 336.6580 or the USDOT at (517) 377-1866 or visit their web site at **hazmat.dot.gov** for information about their requirements. Also see Chapter 4.4 for further discussion of these requirements.

[3] Liquid universal wastes would be shipped as Part 121 liquid industrial waste, not as hazardous waste

2.4.1.d Exclusions and Exemptions

Some waste streams may meet applicable exclusion and exemption criteria and not be fully regulated as a hazardous waste. These exclusions and exemptions are too numerous to include in their entirety in this publication, but the following summarizes some common ones and others are identified in Chapter 2.4.2.d. Additional management requirements are included in Chapter 2.4.9. for some specific wastes. See EPA resources on the Internet for more information about exclusions and exemptions: **"RCRA Orientation Manual"** at **www.epa.gov/epaoswer/general/orientat** and the **"RCRA, Superfund, & EPCRA Hotline Training Modules"** at **www.epa.gov/epaoswer/hotline/modules.htm**. Discuss exclusion or exemption questions with your WHMD district office.

RECYCLING

Recycling may occur at the generator's site or off-site. Different regulations apply to companies recycling their own wastes and those offering commercial recycling services. Generators must keep records of on-site reclamation.

Companies that have submitted information that they offer recycling services are listed in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd**. As the generator, you should ensure the recyclers are meeting the applicable environmental regulations. For example, if the recycling company offers transportation services, ask if they meet the applicable transporter regulations to haul your type of waste.

It is necessary to consider all the regulations (e.g. Parts 31, 55, 111, 115, and 121) that may be applicable to meet requirements to recycle materials. In some cases recycling a material may be exempt under all the waste regulations but the process may be subject to air regulations (Part 55) and wastewater discharge limitations (Part 31). In other situations, some hazardous waste that is recycled is excluded from being regulated as a hazardous waste but as a liquid it is regulated as liquid industrial waste. For example, gas removed from an abandoned storage tank or gas/water mixtures that is shipped off site to be burned as a fuel at a cement kiln is exempt from being a hazardous waste, but it must be shipped and manifested as a liquid industrial waste. See R 299.9206 and discuss specific recycling requirements with your WHMD district office.

Materials that are directly used or reused are not regulated as hazardous waste when they are:

- Used as an ingredient to make a product, without first being reclaimed which may include filtering or any other processing before use. A material is "reclaimed" if it is processed to recover a usable product, or if it is regenerated.
- Used as an effective substitute for a commercial chemical product.
- Returned to the original process from which it was generated, without first being reclaimed. However, if the material is reclaimed prior to reuse or is used to produce products that are applied to or placed on the ground or burned for energy recovery, the material and the recycling process are fully regulated.

There are speculative accumulation limits for materials being collected for recycling. Speculative accumulation under the hazardous waste regulations does not include collected materials when at least 75% of the material (either by volume or weight) is recycled, or transferred to another site for recycling, within the calendar year beginning January 1. See R 299.9107(z) for definition of hazardous waste speculative accumulation and see Section 324.12112(3) for liquid industrial waste.

LABORATORY SAMPLES

A waste sample that is sent to a laboratory to determine if it is a hazardous waste is exempt from most of the hazardous waste regulations, if it meets certain conditions. Send the smallest amount needed for the test (typically this is less than one gallon) to the laboratory, and the laboratory may return any remaining sample to the generator. If the waste is determined to be a hazardous waste this exemption no longer applies to the sample after it is no longer needed for waste characterization purposes. See Chapter 2.4.2.b for shipping record requirements.

EMPTY CONTAINERS

Empty containers, liners, and residue from "empty containers" are not subject to the hazardous waste requirements if the following conditions are met:

1. The containers or the inner lining that held non-acute hazardous waste have had as much material removed as possible (by practices commonly used to remove that material such as pouring, pumping, and aspirating), AND the amount of hazardous waste residue is any of the following:
   - One inch or less; OR
   - No more than three percent by weight of the total capacity for containers 110 gallons or less in size; OR
   - No more than 0.3 percent by weight of the total capacity for containers over 110 gallons.

2. The containers that held acutely or severely toxic hazardous waste (e.g., waste identified on the "P" or "S" lists and some "F" wastes) have been triple-rinsed using a material capable of removing the product or by another proven cleaning method, or the inner lining that prevented contact of the chemical with the container has been removed from the container.

   New rule pertaining to containers or inner liners that held pharmaceutical formulations: If it was an acute hazardous waste listed solely for a hazardous waste characteristic and the formulation in the container or inner liner does not exhibit that characteristic, the container or inner liner is empty if the above requirements in condition #1 are met.

3. Compressed gas cylinders have been emptied to the point where the pressure in the container approaches atmospheric pressure.

WASTEWATER DISCHARGES TO MUNICIPAL SEWER SYSTEMS

Wastewater that contains hazardous waste and is discharged through sanitary sewers to publicly owned treatment plants (POTW) is exempt from the hazardous waste regulations at the point of discharge into the sewer system if the POTW approves the discharge (see Chapter 3.2.1). Review the revised rules for requirements to discharge solvents into wastewater treatment plants. However, any hazardous waste generation, treatment, or storage prior to that discharge is subject to the hazardous waste regulations. This exemption does not apply to hazardous waste that is transported by truck or rail to a POTW.

An exemption from the mixture rule exists if very small amounts, or de minimis amounts, of listed hazardous waste are discharged to a wastewater treatment plant with large volumes of nonhazardous wastewater. The recent rule amendments clarify de minimis losses "are inadvertent releases to a wastewater treatment system." There are additional requirements if claiming the de minimus exemption including meeting wastewater discharge requirements.

Keep a copy of the federal clean water act permit application or the submission to the pretreatment control authority records at the facility. It is recommended you keep records of your hazardous waste discharges. See Chapter 3.
If a facility is doing any on-site treatment, including waste neutralization, that involves

discharges to a sewer system, they need to have a certified wastewater operator (see Chapter 3.5).

Discuss this exemption with your WHMD district office (see Appendix C for phone numbers).

2.4.2 Determining If You Generate Hazardous Waste

All facilities must determine if the waste they generate is hazardous or non hazardous. If the materials used, or the process generating the waste changes, or there are other impacts from business operations that may change the waste (e.g. cross contamination from aerosol overspray), it will be necessary to re-evaluate the waste determination. The regulations do not require a specific timeframe like annually to re-evaluate the waste. You may want to check if the disposal company has a retesting schedule.

Keep any records obtained during waste determinations (i.e., test analysis results, material safety data sheet (MSDS) (see Appendix E), or other documentation such as product information from a supplier or manufacturer) at least three years from the time the waste stream was last sent for treatment, storage, or disposal.

If Large Quantity Generators are doing on-site treatment, they must also have a waste analysis plan (WAP) under the land disposal restriction regulations (40 CFR 268.7(a)(5)). See EPA guidance at **www.epa.gov/epaoswer/hazwaste/ldr/wap330.pdf**

2.4.2.a Who can do waste determinations for a business?

A business may either:

- Hire a consultant or use a disposal company's waste characterization services. Be aware the waste generator is still ultimately responsible for meeting the waste regulations.

- Characterize the waste themselves by either:

  ✓ Using knowledge of the material and the process it came from. Information from the material safety data sheets (MSDS), supplier and manufacturer literature, or other documentation may be useful when you have unused product needing disposal. A MSDS often provides information about the flashpoint, pH, or if a discarded product is a hazardous waste. A MSDS is not completely reliable for determining if a used material is hazardous waste because it does not include information about contaminants that might be in that waste. The MSDS can be obtained from the suppliers or manufacturers of the products you are using. Some MSDS are also available on several Internet sites like **www.hazard.com**.

  A waste stream may be presumed to contain certain constituents above regulatory thresholds for compliance purposes, but disposal facilities may still require testing before accepting a waste stream. Applying your knowledge is more useful when declaring something is a hazardous waste than when saying a waste is NOT hazardous.

  ✓ Having a representative sample of the waste tested.

2.4.2.b What are testing requirements?

It is recommended a business or consultant contact the disposal company before collecting samples and submitting them for testing. The disposal company might require specific tests or only accept data from specific laboratories. Ask the disposal company for a list of these tests, the purpose of the tests, approved testing methods, and acceptable laboratories. This step will prevent you from spending money on laboratory tests that are not necessary or do not meet the disposal company's requirements. The waste rules identify which laboratory methods can be used. If the waste is from cleanup activities, see the methods in the **Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria** but before testing discuss your cleanup situation with MDEQ staff.

It is wise to obtain estimates from two or more laboratories. A list of testing laboratories is available at **www.deq.state.mi.us/pubcenter** and search on key words "testing lab." In some cases, the tests will save you money by showing that you do not have hazardous waste. When hiring testing services, use a reputable firm and obtain a written contract. The contract should clearly identify which specific services the company will provide. For example, instead of vague language about sampling waste, identify:

- ✓ Who is responsible for collecting samples?
- ✓ Who will arrange to have it analyzed?
- ✓ Who will arrange to have an expert look at the analysis results?
- ✓ Who will determine if the waste is hazardous and at which regulatory limit?

Waste samples being sent to laboratories are exempt from most of the hazardous waste regulations if it meets certain conditions. Submit the smallest sample amount as possible for testing (typically less than one gallon), and the laboratory may return any remaining waste sample to the generator. The exemption no longer applies when the sample is determined to be hazardous waste and is no longer needed for waste characterization purposes.

Contact the laboratory about its procedures for accepting samples. When shipping the sample, you must meet U.S. Postal Service or US Department of Transportation (US DOT) labeling and shipping requirements. US DOT questions can be directed to Michigan State Police, Traffic Safety Division or the USDOT at (800) 467-4922. If these agencies' regulations do not apply to the sample, it must be packed so it does not leak, spill, or vaporize. Waste samples being shipped to a laboratory are not required to be manifested, but the following information must accompany the shipment:

- ✓ Sample collector's name, mailing address, and telephone number.
- ✓ Laboratory's name, mailing address, and telephone number.
- ✓ Date of shipment.
- ✓ Quantity of the sample.
- ✓ Description of the sample.

2.4.2.c What are common laboratory tests?

The hazardous waste rules reference the acceptable test methods that are used to determine if wastes are hazardous or not. These methods can be found in the EPA publication "SW-846" at **www.epa.gov/epaoswer/hazwaste/test/main.htm.**

The **paint filter test** is EPA Method 9095A that is use to determine the presence of free liquids in a representative sample of waste. A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-minute test period, it contains free liquids. If these wastes are not regulated under the hazardous waste regulations, they are regulated under Part 121 of Act 451 as a liquid industrial waste.

The **Toxicity Characteristic Leaching Procedure (TCLP)** is EPA Method 1311 that is used to determine if a waste has toxicity characteristics in amounts that meet or exceed regulatory limits causing it to be regulated as hazardous waste. The TCLP was designed to predict whether a waste is likely to leach chemicals into groundwater. It simulates the conditions a waste might encounter in a typical municipal solid waste landfill. Be aware that it is not necessary to identify every chemical component of the waste in order to meet the hazardous waste regulations and ensure adequate treatment or disposal. It may not be necessary to run a TCLP for every constituent included on the "D" list if you are familiar with your process. For example, you may only need to have a TCLP done for metals and volatiles if you know that the other constituents are not present in the waste. If you are unsure of the types and concentrations of hazardous contaminants present in the waste, a cost-effective option to running a TCLP test is to first run a total waste analysis to demonstrate if a waste exhibits toxicity characteristics. If the waste is 100% solids, divide the total constituent concentration by 20 and then compare the resulting theoretical concentration to the regulatory limit in Table 3. This is sometimes called the 20 times rule. If no theoretical concentration equals or exceeds the regulatory limit, the solid cannot exhibit the toxicity characteristic and the TCLP does not need to be run. If the waste is a liquid or contains both liquids and solids, go to **www.epa.gov/rcraonline** and search for "Total Waste Analysis" for more information and formula to convert totals results.

In other situations, you may only need to know if a liquid waste is ignitable and can request a flashpoint test; or to find out if it is corrosive, a pH test can be done. Special tests might be required if you have drums or containers of mixed or unidentified old waste. You may be able to minimize laboratory testing costs by providing information about your waste streams and operations that were previously collected during your waste survey. See the revised rules for changes to the test methods referenced for determining ignitability and corrosivity characteristics.

Although it is not commonly done, you may be able to conduct some tests on your own to determine if you have hazardous waste. For example, used oil can be tested on-site by using a commercial test kit to determine if it contains total halogens greater than 1,000 ppm requiring it to be handled as a hazardous waste. Discuss these testing options with your permitted and registered waste transporter, treatment, storage, and disposal facility (TSDF), or recycling company to see if they will accept these test results.

2.4.2.d Steps when doing waste determinations

A. Conduct a waste survey as described in Chapter 2.1 to identify all your waste streams. Hazardous waste may be generated in many areas of your business from the shop floor to offices. Following are some commonly overlooked wastes. Reasons why it may be a hazardous waste are in parenthesis.
   - Spent fluorescent tubes and other lighting fixtures (toxic for mercury).
   - Disposable rags containing free liquids with a flashpoint of less than 140 degrees Fahrenheit or used with a listed solvent (ignitability, spontaneous combustion, used with “F” listed solvents).
   - Spent activated carbon media, included in some air filters and other equipment (contains “F” listed solvents).
   - Used solvents with low flashpoint (toxic, ignitability).
   - Used solvents with high flashpoints (toxic and ignitable contaminants).
   - Drain or sump sludge, including loading/unloading area trenches (contains toxic metals or “F” solvents, ignitability due to gasoline from trucks).
   - Painting materials and waste including paint thinners, enamel reducers, epoxies, primers, enamels, solvent-based paints, and paint booth filters (contains “F” solvents, metals, ignitability).
   - Aerosol cans that are not empty (contains “U” or “P” chemicals, ignitability).
   - Solvent-based adhesives (ignitability).
   - Batteries - lead acid and dry cell (toxic for lead and mercury, corrosive).
   - Used water-based or synthetic lubricating fluids containing high concentrations of heavy metals (toxic metals of concern include lead, chromium, cadmium, and barium).
   - Listed wastes mixed with another nonhazardous waste.
   - Office computer equipment (may contain lead in the cathode ray tubes, mercury switches, batteries).
   - Discarded, unused chemical products from inventory reduction activities (any of the commercial chemical products on the “P” and “U” lists in the state or federal regulations).
   - Medical kits containing mercury thermometers or antiseptics containing mercury (toxic).

B. Identify if the material can be used “as is” without any processing, filtering, etc. and thus can be used as a product and not be disposed of as a waste. Consider using material exchanges, associations, or other business connections to find another company that can use the product.

C. Identify if the material is a characteristic and/or listed hazardous waste as identified in Part 2 (Identification and Listing of Hazardous Waste) of the hazardous waste rules and Part 111 of Act 451. Be aware Michigan regulations identify more hazardous wastes than EPA under the federal Resource Conservation and Recovery Act (RCRA) and rules.

Consider these five questions when doing a hazardous waste characterization:

1. Is the unwanted material a waste (solid, semisolid, liquid, or gas)?

2. Is the material specifically excluded or exempted from the hazardous waste regulations? See the complete descriptions in the Part 111 of Act 451 rules. Some common materials include:
   - Universal waste, which includes electric lamps (e.g. fluorescent and other light bulbs (see Chapter 2.4.9.e), batteries see Chapter 2.4.9.c and d , devices containing mercury, consumer electronics including computers (see Chapter 2.4.9.m), certain pesticides, and pharmaceuticals. See the *Universal Waste* guidance in the DEQ publication center at www.deq.state.mi.us/pubcenter.
   - Rags and other textiles being cleaned for reuse (see Chapter 2.4.9.h)
   - The remaining residue in “empty containers” (see Chapter 2.4.1.d)
   - Solvents (see Chapter 2.4.9.i)
   - Oils and filters (see Chapter 2.4.9.a and 2.4.9.b)
   - Lead acid batteries (see Chapter 2.4.9.c),
   - Spent chlorofluorocarbon refrigerants
   - Scrap metal when recycled (see Chapter 2.4.9.l and p) . Be aware that scrap metal from sealed radioactive sources, typically installed in measurement gauges used in manufacturing operations or in hospital equipment and other sources, may also contain radioactive materials (see Chapter 10). Companies hauling industrial scrap metal for hire must meet requirements overseen by the Department of Labor and Economic Growth, Michigan Public Service Commission under the Motor Carrier Act (Act 254 of 1933). Contact the Motor Carrier Credentials & Customer Service Section at 517-241-6030.

3. Is the waste a "listed" hazardous waste? To be considered listed waste, either the chemical or the process to generate the waste is specifically included in the rules. Listed wastes include “F,” “K,” “P,” and “U” in the hazardous waste number. In some instances, if listed hazardous waste is combined with other non-hazardous wastes, those wastes may be regulated as listed hazardous waste. See Chapter III of the EPA publication “**RCRA Orientation Manual**” for an overview of the “mixture and derived from” and the “contained in” rules along with an overview of hazardous waste characterization and exemptions/exclusions. For a printed copy, call (800) 424-9346 to order document # EPA 530-R-02-016.

4. Does the waste exhibit a characteristic of hazardous waste? The waste could be flammable, corrosive, reactive, or it meets or exceeds the toxicity levels identified for 40 materials identified in administrative rule R 299.9217 and materials listed in R 299.9219. Characteristic wastes include “D” and “S” in the hazardous waste number. Use all waste codes that apply.

5. Is the waste subject to the Land Disposal Restrictions (LDR)? (See Chapter 2.4.5.c)

D. If the waste is not hazardous waste, does it contain free liquids which would make it a Part 121 liquid industrial waste in Michigan? Does it meet any exclusion listed in Part 121 of Act 451? If you are unsure if liquids are present, it may be necessary to have a paint filter test done. Please note used oil has requirements under both Parts 121 and 111. Process wastewater discharged to a septic system is normally regulated as Part 121 waste and not septage waste regulated under Part 117 (Septage Waste Servicers) of Act 451. The septic system will need a groundwater discharge permit or exemption from the DEQ Water Bureau (see Chapter 3).

E. If it is not hazardous waste or a liquid industrial waste, is it a solid waste regulated under Part 115 of Act 451, a scrap tire regulated under Part 169 of Act 451, or a NESHAP regulated asbestos waste? Does it meet any exclusion included in these regulations? (See Chapter 2.2.)

F. In some instances, it may be necessary to determine if the material is a regulated medical waste (see Chapter 2.5) or radioactive material waste (see Chapter 10) or regulated under the federal Toxic Substances Control Act (TSCA) such as PCB waste (see Chapter 4.5).

2.4.2.e Additional waste determination resources

- EPA publication "Guide for Industrial Waste Management" Chapter 2 "Waste Characterization"
- RCRA Training Modules including "Hazardous Waste Identification", "Exclusions", and "Definition of Solid Waste and Hazardous Waste Recycling"
- Federal List of Lists can help identify federal RCRA listed and toxic hazardous wastes. It does not include all characteristic wastes or the additional listed Michigan hazardous wastes.
- Use Internet tools such as the EPA Envirofacts Master Chemical Integrator and MSDS information to search for chemical and hazardous waste information. MSDS can be obtained from the product supplier, manufacturer, or Internet.
- Purchase characterization publications from private companies or associations. For example, the American Society for Testing and Materials has their ASTM Manual 42 RCRA Waste Management: Planning, Implementation, and Assessment of Sampling Activities. This is not a DEQ endorsement for this manual.
- Discuss waste determination requirements with the WHMD district office.

Not properly characterizing waste and keeping documentation are common waste violations.

2.4.3 Hazardous Waste Generator Status & Requirements Summary Chart

Your facility's hazardous waste status (see Table 2.5 on page 2-27) is based on the total quantity of the hazardous waste being generated in a calendar month and accumulated at your site over a specific time period. This status is used when you apply for a site identification number (see Chapter 2.4.4) and determines which regulations you must follow. Facilities are subject to an annual user fee based on the largest hazardous waste generator status they were notified as during the previous year and also have hazardous waste manifest processing fees. The requirements and fees increase as the business generates more hazardous waste. There are

storage time and accumulation volume limits. If the generator does not exceed these limits, a hazardous waste storage operating license is not required.

When calculating your hazardous waste generator status, use the results from your waste survey (see Chapter 2.1) and waste determinations (see Chapter 2.4.2) that identified all of the hazardous waste streams your business generates. You DO NOT NEED to count the following hazardous wastes when calculating your generator status:

- Waste that is not a regulated hazardous waste.
- Hazardous waste that is being managed as a universal waste (see Chapters 2.4.1.c, 2.4.9.d, and 2.4.9.e).
- Reusable shop towels or other textiles that do not contain free liquid and are sent to a commercial cleaning service (see Chapter 2.4.9.h).
- Scrap metal being recycled (see Chapter 2.4.9.p).
- Some materials being recycled such as used oil and filters (see Chapter 2.4.9.a and 2.4.9.b) and lead acid batteries (see Chapter 2.4.9.c).
- The remaining residue in “empty containers” (see Chapter 2.4.1.d.2).
- See R 299.9205(5) for additional wastes that are recycled, reclaimed or treated onsite which are not counted.

Keep in mind that different activities at the site may change the facility’s generator status. For example, when a facility is taking product tanks, totes, other containers, or equipment containing liquids or residues out of service for maintenance, repair or permanent closure, it is necessary to determine if the materials removed from them are a product or a waste. See the Emptying Tanks or Containers guidance for more information.

If a business is on the border of a generator category, it is recommended a simple written log be kept by the waste container that shows when and how much hazardous waste was generated per month. This will provide documentation to support the status level they notified at. For example:

Waste Paint Solvent

Date waste added:	How much added:	By:	Running total for month
1/3/06	**1 gal**	**George G.**	**1 gallon**
1/15/06	*9 gal*	*Pat M.*	*10 gallons*
2/9/06	**2 gal**	**Sammy Jo**	**2 gallons**

A company may lower their hazardous waste generator status and regulations they must meet if they implement waste minimization and other pollution prevention practices and reduce the amount of waste generated (see Chapter 2.1). In addition, when they sign a manifest (see Chapter 2.4.5), they are certifying they have tried to reduce the amount and toxicity of waste generated.

TABLE 2.5
SUMMARY OF THE HAZARDOUS WASTE GENERATOR CATEGORIES

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Amount of acute or severely toxic hazardous waste generated or accumulated at any time[2]	1 kilogram (2.2 pounds) or less	1 kilogram (2.2 pounds) or less	More than 1 kilogram (2.2 pounds)
Amount of acute spill residue or contaminated soil generated or accumulated at any time[2]	100 kilograms (220 pounds) or less	100 kilograms (220 pounds) or less	More than 100 kilograms (220 pounds)
Amount of non acute hazardous waste generated in 1 calendar month	Less than 100 kilograms (220 pounds)	At least 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds)	1,000 kilograms (2,200 pounds) or more
Approximate volume of non acute hazardous waste[3]	Less than half of a 55gallon drum, or 25 gallons	One-half to five drums, or 25 to 250 gallons	Five full drums, or 200-250 gallons
Maximum amount of non acute hazardous waste that can be accumulated on-site	1,000 kilograms (2,200 pounds)	6,000 kilograms (13,200 pounds)	No maximum amount
Maximum time period before waste must be shipped	No time limit unless amount exceeds 2,200 pounds	180 days, unless shipping over 200 miles, then 270 days	90 days

[1] If you are registered at one generator status but have a monthly hazardous waste shipment larger than the quantities allowed at that status, then you will need to update your generator status by renotifying and meet the additional requirements (see Chapter 2.4.4).

[2] Acute hazardous wastes are those in the "P" list and certain wastes in other lists indicated with an (H); severely toxic wastes are those with an "S" in their number.

[3] The liquid volume is only given as an estimate and is based on the waste having approximately the same weight and volume equal to water. Your liquid hazardous waste might have a different volume based on its weight. The regulations state amounts by weight.

The waste management requirements are based on the total weight of hazardous waste generated in a calendar month. A facility may need to convert the amount of waste generated in gallons to pounds to determine their generator status. You can weigh the containers of your hazardous waste. If you have unused products that need to be disposed of, you can also use the MSDS information in your calculations. The specific gravity, also called the relative density, can be found in the “Physical & Chemical Properties” section of the MSDS. It is a unit-less number that tells how much the substance weighs relative to the weight of water. If the specific gravity is 1, the substance weighs the same as water.

Specific gravity of the product x 8.34 lb/gal (weight of water) = weight of the product in lb/gal

Since waste generated from a process may not be same weight as the original products, this calculation may not be accurate for used materials.

TABLE 2.6
SUMMARY OF THE HAZARDOUS WASTE GENERATOR REQUIREMENTS

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Annual User Charge Payment and Manifest processing fees for shipments of hazardous waste	No fees at this time However, if a facility was on file as a SQG or LQG during any period of the billing cycle, they will receive an invoice for those activities	$100 user charge $8.00/manifest used for hazardous waste shipments in the fiscal year	$400 user charge when generates less than 900,000 kg in the calendar year; OR $1000 user charge when generates 900,000 kg or more in the calendar year $8.00/manifest used for hazardous waste shipments in the fiscal year
Waste Characterization/	Required (Chapter 2.4.2) Keep records at least 3 years after waste last sent for treatment, storage, or disposal.	Required (Chapter 2.4.2) Keep records at least 3 years after waste last sent for treatment, storage, or disposal.	Required (Chapter 2.4.2) Keep records at least 3 years after waste last sent for treatment, storage, or disposal..
Waste Analysis Plan/ On-site Treatment/	Small and Large Quantity Generator onsite treatment is allowed without a hazardous waste permit if conditions in R 299.9503 are met. CESQG can also treat onsite but are not subject to Rule 503. If waste is discharge to a municipal sewer system, operators may need wastewater operator certification depending on process (Chapter 3.5). LQGs doing onsite treatment must have Waste Analysis Plan and keep records (Chapter 2.4.2)		
Storage requirements Weekly inspections	Recommended to meet SQG requirements, may be subject to other regulations depending on waste (Chapter 2.4.7)	Yes Recommended written inspection logs (Chapter 2.4.7)	Yes Written inspection logs (Chapter 2.4.7)
Air Emissions Control for Volatile Organic Compounds Hazardous Wastes	No	No	Yes (Chapter 2.4.7.b)
	A facility may have requirements under the Air Quality Division regulations that are not referenced in this chapter.		
Labeling requirements	Yes under MIOSHA and used oil rule (Chapters 2.4.8, 2.4.9, & 13)	Yes (Chapters 2.4.8 & 2.4.9)	Yes (Chapters 2.4.8 and 2.4.9)
Site identification number	Yes if liquid being shipped by registered transporter (Chapter 2.4.4)	Yes (Chapter 2.4.4)	Yes (Chapter 2.4.4)
Hazardous waste report (previously biennial report)	No	No	Yes (Chapter 2.4.6)
Used oil biennial report	Not required for generators. Used oil processors, re-refiners, and transfer facilities storing used oil more than 35 days are required to submit used oil biennial reports by March 1 of each even numbered year that covers the previous year's activities. See summary at www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf.		

TABLE 2.6
SUMMARY OF THE HAZARDOUS WASTE GENERATOR REQUIREMENTS

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Annual report Imports/Exports	Hazardous and universal waste exports/imports (Chapter 2.4.5.d) Also see if subject to Annual Wastewater Report (Chapter 3.4)	Hazardous waste exports/imports (Chapter 2.4.5.d) Also see if subject to Annual Wastewater Report (Chapter 3.4)	Hazardous waste exports/imports (Chapter 2.4.5.d) Also see if subject to Annual Wastewater Report (Chapter 3.4)
Personnel training[4]	Recommended but not required under waste regulations (Chapter 2.4.12); USDOT training when shipping hazardous waste; (Chapters 4.4.10 & 6.2.7); MIOSHA training (Chapter 13)	Basic training required (Chapter 2.4.12) USDOT training required when shipping hazardous waste (Chapters 4 & 6); MIOSHA training (Chapter 13)	Required. Need written documentation (Chapter 2.4.12) USDOT training required when shipping hazardous waste (Chapters 4 & 6); MIOSHA training (Chapter 13)
Contingency plan[4]	Recommended but not required under waste regulations; USDOT security plan if shipping excess of 1000 pounds hazardous waste (Chapter 6.2.7)	Basic plan Post required information by telephones Chapter 6.2.1; USDOT security plan if shipping excess of 1000 pounds hazardous waste (Chapter 6.2.7)	Written plan required Chapter 6.2.1; USDOT security plan if shipping excess of 1000 pounds hazardous waste (Chapter 6.2.7)
Emergency procedures [4]	Recommended but not required under waste regulations	Yes (Chapter 6.2.1).	Yes (Chapter 6.2.1)
Manifests/Shipping Records	Yes if liquids or use alternative records identified in Chapter 2.4.5	Yes, or meet tolling arrangement recordkeeping (Chapter 2.4.5)	Yes (Chapter 2.4.5)
Land Disposal Restriction Records	No	Yes (Chapter 2.4.5.c)	Yes (Chapter 2.4.5.c)
Requirements to use Permitted and Registered Transporter	Self haul option (see Chapter 2.4.5.a) or permitted and registered transporter if liquid (Chapter 2.4.10)	Permitted and registered transporter (Chapter 2.4.10)	Permitted and registered transporter (Chapter 2.4.10)
US DOT Transport requirements	Yes, when required by US DOT (Chapters 2.4.8 & 4)	Yes (Chapters 2.4.8 & 4)	Yes (Chapters 2.4.8 & 4)
Waste minimization requirements	Recommended (Chapter 2.1)	Yes (Chapter 2.1)	Yes (Chapter 2.1)

TABLE 2.6
SUMMARY OF THE HAZARDOUS WASTE GENERATOR REQUIREMENTS

	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Closure of Accumulation Areas	Meet Part 201 cleanup requirements (Chapter 6.4)	Meet requirements in 40 CFR Parts 265.111 and 265.114: Decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads. Also meet Part 201 cleanup requirements (Chapter 6.4)	Meet requirements in 40 CFR Parts 265.111 and 265.114: Decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads. Also meet Part 201 cleanup requirements (Chapter 6.4)
Off-site Treatment, Storage or Disposal of Waste	State permitted or hazardous waste permitted/interim status facility	Hazardous waste permitted/interim status facility	Hazardous waste permitted/interim status facility

[4] May also be subject to other emergency planning and training regulations in Chapter 6

2.4.4 Identification Numbers

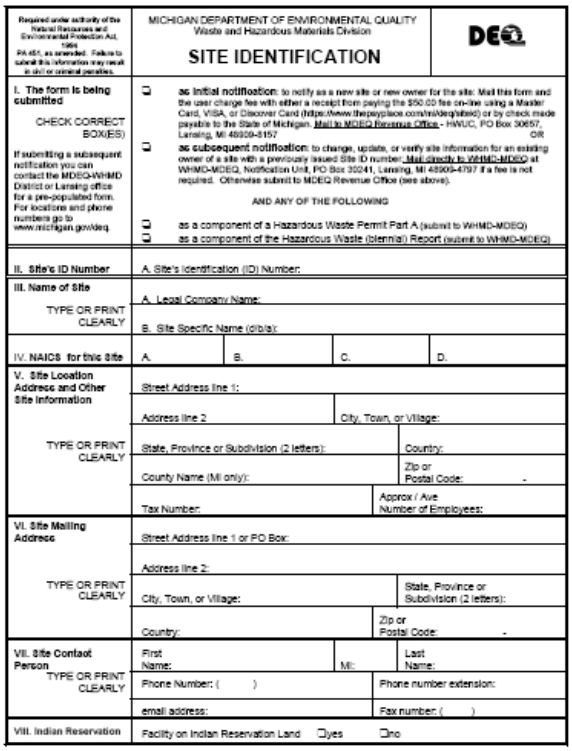
Manufacturers are required to have a unique waste identification number assigned to each site that manages regulated waste. Some people refer to this as an "EPA number." This numbering system applies to:

- **Hazardous waste and liquid industrial waste** generators, transporters, treatment, storage, and disposal or destination facilities; hazardous waste fuel burners and marketers.
- **Universal waste** large quantity handlers and destination facilities.
- **Used oil** generators, collection and aggregation sites, transporters, processors or re-refiners, burners, and marketers.

If it isn't known for sure if a business has a site identification number, or what activities are on file, search the Waste Data System (WDS) at **www.deq.state.mi.us/wdspi**. If you don't know the site identification number, it is recommended to first search on the street number and zip code in the appropriate address fields. By searching on an address, you avoid getting no matches when a business may be in the system under one name, but commonly known as something else. If you know the site identification number, type that in the WDS Quick Search field. If you need help or don't have Internet access, call your WHMD district office or (800) 662-9278 for assistance.

See the information posted on the Waste Data System (WDS) web page at **www.deq.state.mi.us/wdspi** about applying for a site identification number. If an existing facility

needs to update information on file with WHMD, they may fill out a blank EQP5150 form (select subsequent notification in box I) or request a pre-populated **"Site Identification Form" (EQP5150)** form from the WHMD district office or call (517) 335-2690 and request to be transferred to a WHMD notification program coordinator. Facilities needing a new site identification number must file the Michigan **"Site Identification Form" (EQP5150)** (select initial notification in box I). This form is also used for out of state companies whose state does not issue identification numbers for shipping their nonhazardous waste to Michigan destination facilities. For Michigan facilities, this form replaces the EPA Notification of Regulated Waste Activity Form 8700-12, the EPA Hazardous Waste Permit Part A Form 8700-23, the Michigan Notification of Regulated Waste Activity Form, and the EPA Notification Identification and Certification Form 8700-13A/B. The "Site Identification Form" is also used in conjunction with the **"Michigan Hazardous Waste Permit Part A Form" (EQP5111)**. When a site identification number is needed or there is a change in company name or ownership/operators, there is a $50 application fee. Facilities have the option to pay online or pay with a check or money order.



Required under authority of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended. Failure to submit this information may result in civil or criminal penalties.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Waste and Hazardous Materials Division

DEQ

SITE IDENTIFICATION

I. The form is being submitted
CHECK CORRECT BOX(ES)
If submitting a subsequent notification you can contact the MDEQ-WHMD District or Lansing office for a pre-populated form. For locations and phone numbers go to www.michigan.gov/deq

❑ as initial notification: to notify as a new site or new owner for the site. Mail this form and the user charge fee with either a receipt from paying the $50.00 fee on-line using a Master Card, VISA, or Discover Card (https://www.thepayplace.com/mi/deq/sitefid) or by check made payable to the State of Michigan. Mail to MDEQ Revenue Office - HWUC, PO Box 30657, Lansing, MI 48909-8157 OR

❑ as subsequent notification: to change, update, or verify site information for an existing owner of a site with a previously issued Site ID number. Mail directly to WHMD-MDEQ at WHMD-MDEQ, Notification Unit, PO Box 30241, Lansing, MI 48909-4797 if a fee is not required. Otherwise submit to MDEQ Revenue Office (see above).

AND ANY OF THE FOLLOWING

❑ as a component of a Hazardous Waste Permit Part A (submit to WHMD-MDEQ)
❑ as a component of the Hazardous Waste (biennial) Report (submit to WHMD-MDEQ)

II. Site's ID Number — A. Site's Identification (ID) Number:

III. Name of Site (TYPE OR PRINT CLEARLY) — A. Legal Company Name: / B. Site Specific Name (d/b/a):

IV. NAICS for this Site — A. B. C. D.

V. Site Location Address and Other Site Information (TYPE OR PRINT CLEARLY) — Street Address line 1: / Address line 2 / City, Town, or Village: / State, Province or Subdivision (2 letters): / Country: / County Name (MI only): / Zip or Postal Code: - / Tax Number: / Approx / Ave Number of Employees:

VI. Site Mailing Address (TYPE OR PRINT CLEARLY) — Street Address line 1 or PO Box: / Address line 2: / City, Town, or Village: / State, Province or Subdivision (2 letters): / Country: / Zip or Postal Code: -

VII. Site Contact Person (TYPE OR PRINT CLEARLY) — First Name: / MI: / Last Name: / Phone Number: ( ) / Phone number extension: / email address: / Fax number: ( )

VIII. Indian Reservation — Facility on Indian Reservation Land ❑yes ❑no

Tip: Make sure to completely fill out the EQP5150 form. Some commonly missed fields are the tax number, number of employees, no day, month and year in the approximate date when became owner or operator, and applicable NAICS codes. The NAICS codes can be found at **www.naics.com.**

Do not use outdated versions of the form **EQP5150** (the current version at time of this publication's printing was 12/07). If you are uncertain about whether you have the correct form or if you need a different waste identification number, or have questions about hazardous waste and liquid industrial waste management, contact your WHMD district office or call (800) 662-9278 for a referral. If you have questions about an application for a site identification number, call the WHMD at (517) 335-2690 and ask for a notification program coordinator. When submitting the form, make sure your form is filled out completely and correctly. Sign the certification section and mail or fax the form to the address or number listed on the form.

Companies are currently issued new numbers beginning with the prefix MIK# # # # # # # # #. Companies may have numbers issued previously with a prefix of MIR, MID, MIT, MIE, or MI0 or have a Michigan identification number (which has a prefix MIG, MIH or MIP).

A facility may need to obtain a new site identification number and update notification information previously submitted if there are changes regarding their regulated waste activities at the site. It is necessary to check all the boxes that apply to the regulated waste. Used oil generators would notify that activity as a liquid industrial waste generator. Examples when a notification must be submitted by using the form EQP5150:

- A company that had previously only shipped used oil and had a Michigan identification number, but now also generates hazardous waste in amounts making them a SQG or LQG. Check the appropriate box in A for hazardous waste generator and check box in Section X. E. for liquid industrial waste generator.

- A company moves to a new location and will be generating or managing regulated waste at the new site. Check all applicable boxes on the form. See the next bullet if there was an identification number issued for the site where they used to operate.

- A company no longer generates waste that had previously required an identification number at a location but the company is still in operation at that site, or it has gone out of business. Check the box in Section X. F. that states it is no longer in business or not generating waste at that location.

- A company wants to haul used oil in volumes of 55 gallons or less from their other locations they own or operate to a central location. Check the box in Section X.C. for collection center or aggregation point and check boxes in Section X.E. for liquid industrial waste generator and transporting own waste.

- A company wants to offer a community used oil collection service to accept used oil from individuals changing their own oil and they generate their own used oil. Check the boxes in Section X.C. for collection center or aggregation point that accepts DIY oil and in Section X.E. for liquid industrial waste generator.

- A company handles total accumulated amount of 11,000 pounds or more of all universal wastes. Check appropriate boxes in Section X.D.

- A facility accepts liquid industrial waste from other sites. Check the box in Section X. E. for liquid industrial waste designated facility and any other regulated activities.

A facility may have an identification number issued under a different program, such as a medical waste identification number issued by the WHMD Medical Waste Program or a federal identification number for PCBs assigned by the EPA TSCA Program. The TSCA number may be used on a manifest but only when shipping the waste regulated under that specified program. Shipments of regulated liquid industrial waste or hazardous waste require the use of the applicable identification number issued by the DEQ WHMD, or previously issued by EPA, on the manifest.

2.4.5 Manifests and Shipping Records

The following summarizes the waste manifest and shipping records requirements under the waste regulations. See Chapter 4.4 for additional shipping requirements overseen by the Michigan State Police and US DOT. The WHMD has prepared a **"Manifest Tracking Log"** to help you track your waste shipments and record keeping; however, you are not required to use this specific log to track your shipments. A Word® version of the log is available at **www.michigan.gov/deqwaste**.

2.4.5.a Hazardous and Liquid Industrial Waste Manifests

All states now use the federal uniform hazardous waste manifest. In Michigan, that EPA Form 8700-22 is used for shipping both hazardous and liquid industrial waste.

Manifest forms are designed to track hazardous and liquid industrial waste shipments of waste from their point of generation to their final destination. Specific requirements depend on the type of waste shipped. You are required to list up to six hazardous waste numbers, or some people call them waste codes, for each hazardous and liquid industrial waste you ship with the manifests. See Table 2.3 for the liquid industrial waste numbers. Table 2.4 includes the toxicity hazardous waste numbers, and all the hazardous waste numbers are in Part 2 of the Part 111 administrative rules. There have been clarifications and deletions of waste codes in the 2008 rule amendments.

The generator of the waste, the transporter, and the TSDF that receives the waste must each sign and keep a copy of the manifest as they handle the waste. Manifests will be required for the majority of waste shipments. However, there are four circumstances when individual manifests are not required:

1. A waste manifest is not required for companies transporting their own liquid industrial waste including used oil, and CESQG's transporting their own liquid hazardous waste, in amounts of 55 gallons or less to a designated facility, if the following conditions are met:

    - It is not necessary to notify the WHMD of this activity if this is the only waste the company generates because a site identification number is not required to be used. However, if the company has other regulated waste activities requiring the submittal of the **EQP5150** form, check the box for those activities, along with being a liquid industrial waste generator, and for transporting own liquid industrial waste (see Chapter 2.4.4). These companies are not required to be a permitted and registered transporter when only hauling their own liquid industrial waste.
    - Transport the waste with a record of where the waste is generated from, what is the waste, the quantity of the waste, and where the waste is being transported with the waste shipment.
    - Obtain a signature from the designated facility acknowledging receipt of the waste and provide a copy of the record to that facility.
    - Keep a copy of shipment records for at least three years after the date of shipment.
    - Manage the waste according to the liquid industrial waste regulations (see Chapter 2.3). The designated facility must have notified the WHMD of their activities and if they are accepting used oil, the notification would include they are a used oil aggregation point or collection center.
    - Have required insurance.
        - The generator should check if their insurance company will cover accidents involving the transportation of this waste. The DEQ will not enforce the requirement for insurance when a generator is transporting the above waste to a properly notified and operated destination facility, including a local household hazardous waste collection program that accepts business waste, providing the generator is in compliance with the federal transportation requirements (see op memo 121-2).

    NOTE: If a company is transporting shipments more than 55 gallons of that company's own generated liquid industrial waste, then the generator must meet the following requirements:

- Notify the WHMD of regulated waste activities on the form **EQP5150** (see Chapter 2.4.4). A generator hauling their own liquid industrial waste is not required to be a permitted and registered transporter when only hauling their own liquid industrial waste.
- Manage the waste according to the liquid industrial waste regulations (see Chapter 2.3).
- Use waste manifests and take waste to designated facilities that have notified the WHMD of their activities and are meeting Part 121 designated facility requirements.
- Have insurance coverage as required by the Hazardous Materials Transportation Act and manifest the waste shipment.
  - If using vehicles under 10,000 pounds gross vehicle weight, have fleet coverage of at least $300,000.
  - If using vehicles equal to or greater than 10,000 pounds gross vehicle weight, have fleet coverage of at least $750,000. Note you have additional federal insurance requirements of $5,000,000 if you have cargo tanks, portable tanks, or hopper-type vehicles with over 3500 water gallons capacity and are hauling hazardous materials identified in section 9 of 49 CFR 387.
  - Get a copy of the form **"MCS-90"** (endorsement for motor carrier policies of insurance for public liability under Section 29 or 30 of the Motor Carrier Act of 1980) from your insurance company and submit it to the DEQ WHMD, Attn: Transportation Program Technician, Southeast Michigan District office, 27700 Donald Ct, Warren MI 48092-2793.

2. When consolidated manifests are used by permitted and registered transporter for liquid industrial waste shipments or CESQG hazardous waste shipments, a generator does not need to have to use individual manifests. A consolidated manifest may be used when a transporter is picking up the same type of waste from numerous generators and it is being commingled on a single vehicle. The transporter must provide a receipt for each individual pickup to the actual generator of the waste. The receipt must include all the following:
   - Transporter's company name
   - Driver's signature
   - Date of pickup
   - Type and quantity of waste removed
   - Consolidated manifest number
   - Designated facility

   For more information about consolidated manifests see Operational Memo 121-3 at **www.deq.state.mi.us/documents/deq-wmd-opmemo-121-3.pdf**.

3. Small Quantity Generators with a "tolling arrangement" are exempted from manifesting hazardous waste if that waste is being transported off-site and reclaimed under a contractual agreement and if certain procedures are followed. However if it is a liquid, it still must be manifested as a liquid industrial waste.
   - The contract must specify the type of waste and the frequency of shipments.
   - The vehicle used to transport the waste to the recycling facility and deliver the regenerated material back to the generator is owned and operated by the reclaimer. The reclaimer would need to be a permitted and registered liquid industrial waste transporter.
   - The generator maintains a copy of the reclamation agreement for at least three years after the contract expires.

- The generator must also meet the land disposal restriction requirements per 40 CFR 268.7(a)(10) (see Section 2.4.5.c). Keep a copy of the notification and certification onsite with the tolling agreement for at least three years after termination of the agreement.

4. A Conditionally Exempt Small Quantity Generator is not required to manifest solid hazardous waste that is being transported to an authorized disposal facility where the waste has been approved to be accepted.

You may want to discuss these manifest exemptions with your WHMD district office (see Appendix C for phone numbers).

Most waste companies will provide the manifest. If you need to get your own forms, order them from EPA registered printers. A link to those printers is at **www.michigan.gov/deqwaste** (select "Uniform Manifest Information" under Announcement heading. Your hazardous waste transporter and treatment, storage and disposal facility will often be able to help you complete the manifest, or you may contact the Manifest Unit or your WHMD district office if you have any questions. If someone else prepares the manifest for you, check it over carefully because you must sign a statement that all of the listed information is correct. Anyone who signs the manifests must meet the USDOT training requirements described in Chapter 4.4.10.

All generators are required to submit the appropriate manifest copy to the WHMD within 10 days after the end of the month in which the waste was shipped. When shipping your waste out of state, you may need to photocopy the manifest if there are not enough pages and submit that copy to the WHMD. The Michigan TSDF operator must send a copy to the WHMD after they receive the waste, and they must send you a signed copy to assure that your shipment of waste arrived. Keep this copy signed by the transporter and TSDF on file for at least three years.

Tip: Make sure the copy you submit to the WHMD is readable. If necessary write over the information on the copy so it is legible. Make sure the information on the edge of the form hasn't been "cut off" when photocopying. Talk to your disposal company about getting better copies, or if you are ordering the manifests for your company, contact the printer about the problems getting legible copies.

If the transporter gives you the first page of the manifest to send to WHMD, line out "Designated Facility to Destination State (if Required)" and write in Generator Copy.

There are time limits in which you should receive the manifest copy from the TSDF. If you do not get your copy within the time frames given, you need to submit the following information to the appropriate agency:

If you shipped liquid industrial waste or are a Conditionally Exempt Small Quantity Generator and have not received a copy of the manifest from the TSDF within 35 days, contact the transporter and TSDF operator to determine what happened with your shipment. If you still have not received the manifest copy within 45 days after the waste was shipped, file an exception report with the WHMD. Include a copy of the manifest and a letter explaining what contacts you have had with the transporter and TSDF and any information you have regarding the shipment.

If you are a Small Quantity Generator, make sure that you received a manifest copy from the TSDF within 60 days after you shipped the hazardous waste. If you have not received it, send a copy of the manifest along with an explanation to the WHMD stating you have not received confirmation of the delivery from the TSDF.

If you are a Large Quantity Generator, make sure that you have received a copy of the manifest from the TSDF within 35 days after you shipped the hazardous waste. If you have not received it, contact the transporter and TSDF about the shipment. If you still haven't received a copy within 45 days after shipment, file an exception report with both the WHMD. This report must include a copy of the manifest and a letter signed by you which explains what efforts you have taken to locate the shipment of hazardous waste and any results of those efforts.

Mail exception reports to:

DEQ WASTE AND HAZARDOUS MATERIALS DIVISION
MANIFEST UNIT
PO BOX 30038
LANSING, MI 48909-7538

2.4.5.b Universal Waste

Liquid universal waste shipments (e.g. antifreeze, pesticides, some pharmaceuticals) need to have manifests as liquid industrial wastes (see Chapter 2.4.5.a) because there is not an exemption in Part 121 for universal wastes. Universal wastes not accompanied by a waste manifest may require USDOT shipping papers if it meets the definition of hazardous materials per the USDOT regulations under 49 CFR 172 and 49 CFR 171.8 (e.g. packages containing one pound or more of mercury). See the following sections pertaining to specific waste streams and contact the Michigan State Police, Traffic Safety Division at (517) 336.6580 or USDOT at (800) 467-4922 for more shipping information.

The universal waste rule does not require Small Quantity Handlers to keep records of their universal waste shipments but they would need to meet the waste manifest requirements if it was a liquid. For other shipments, it may be helpful to have some documentation that shows your waste was handled properly when you sell the site or business.

Large Quantity Handlers must keep records of universal waste they receive and universal waste shipped off-site. These records must be kept at least three years. The records can be in the form of a log, invoice, manifest, bill of lading, or other shipping document. The following information must be recorded:

- ✓ Name and address where the universal waste came from and/or to where it was shipped.
- ✓ Quantity of each waste type (i.e., batteries, electric lamps, pesticides, etc.) received and/or shipped out.
- ✓ Date when you received the shipment and/or when you sent out the shipment.

2.4.5.c Land Disposal Restrictions

Small Quantity and Large Quantity Generators must send a one-time written notice with the initial shipment of hazardous waste to the TSDF containing specific language advising the TSDF whether or not the hazardous waste shipment is prohibited from land disposal. A new notification must be sent when there is a waste or facility change. This is called a land ban notification, also known as a land disposal restriction (LDR). The LDR program requires hazardous waste to undergo physical or chemical changes so that there is less threat to the ground water, surface water, and air when the hazardous waste is disposed of in landfills, surface impoundments, injection wells, concrete vaults, underground mines or caves, waste piles, or other land disposal locations. Both listed and characteristic hazardous wastes must meet the LDR treatment standards before being land disposed. Compare the standards that are found in 40 CFR 268.42 with the hazardous waste numbers generated at the facility.

LDRs are also required when generators are treating hazardous waste on-site and for SQGs using tolling agreements to ship hazardous waste for recycling (see Chapter 2.4.5.a).

The specific treatment standards are too numerous to include in this guidebook. Go to **www.epa.gov/epaoswer/hazwaste/ldr/ldr-sum.pdf** and **www.epa.gov/epaoswer/hazwaste/ldr/index.htm** for more information. Discuss your specific LDR requirements with your TSDF or local WHMD district office. Many TSDFs have preprinted the specific statements on forms that you can use to meet this requirement and will help you properly fill out the information. You are required to keep copies of the land ban notifications and certifications for at least three years after the last shipment of that waste.

Common violations regarding land ban notifications include:

- ✓ Failing to keep a copy.
- ✓ Missing a category or subcategory of waste information.
- ✓ Listing incorrect (outdated) treatment standards or information that is inconsistent with the waste characterization.

2.4.5.d Export/Import Records

Companies importing or exporting hazardous waste and universal waste must meet additional federal notification and other requirements overseen by US EPA. See the following rules:

- R 299.9309 for hazardous waste exports and 40 CFR 262 Subpart E
- R 299.9310 for hazardous waste imports and 40 CFR 262 Subpart F
- R 299.9312 and 40 CFR 262 Subpart H for transfrontier shipments for recovery within OECD-Organization for Economic Cooperation and Development

Contact US EPA at least 60 days before the intended date of shipment to obtain written consent. US EPA's "Acknowledgement of Consent" document must accompany the shipment at all times. Contact the following for more information:

- For hazardous waste or universal waste exportation: contact Robert Heiss, US EPA Headquarters at 202-564-4108
- hazardous waste importation: contact William Damico, US EPA Region V at 312-353-8207
- If above contacts not available: contact US EPA Region V, Waste Management Division, Information Management Section at 312-886-7439

2.4.6 Hazardous Waste Report (previously called Biennial Reports)

If you are a Large Quantity Generator at any time during an odd numbered year, or are a TSDF, you are required to submit a Michigan's hazardous waste report to the WHMD by March 1 of every even-numbered year that summarizes the previous calendar year's activities. The 2008 rule amendments removed the reference of this being called a "biennial report".

Do NOT use the EPA biennial report form because that data is not is not compiled in the format used by the MDEQ!

The DEQ, WHMD will mail a pre-populated report form and information packet with instructions to the facility normally by the end of the first week in February as a part of the annual invoice packet. You need to confirm this information is correct for all the hazardous waste generated at your business during the previous odd numbered year, and then add any missing source and management codes for the hazardous wastes. In addition, if you generated and managed any hazardous waste on-site in a unit that is not exempt you must report the volume of waste, the source code and the management code (e.g., treatment of waste in containers). Wastes exported out of the country are not included in this report. Contact the treatment, storage and disposal facility your manifested waste was shipped to if you need assistance with the management codes. Call (517) 335-2690 if you did not receive the forms by mid February of the year they are due, or if you have questions about the information WHMD sent. Contact your district office if you have questions regarding your regulatory status or if you need to see reports submitted to DEQ beginning with the 1999 report period. Contact EPA Region V, Waste Management Division, Information Management Section, at (312) 886-7439 if you have questions about your 1997 or earlier reports.

Keep a copy of the report in your records for at least 3 years from the due date.

The hazardous waste regulations do not require annual reporting in Michigan for shipments in the United States. If you export hazardous waste out of the country, annual reports are submitted to EPA (see Chapter 2.4.5.d). If your company is subject to the Annual Wastewater Report and the waste generated at the facility contains critical materials as identified under those regulations, you must meet those reporting requirements (see Chapter 3.4).

Generators are not required to submit used oil biennial reports. See summary of those requirements at **www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf**.

2.4.7 Hazardous Waste and Universal Waste Accumulation On-site

There are specific requirements regarding the accumulation of waste, including how long you can accumulate it before shipping and how the containers must be labeled. These requirements are detailed in the following sections.

2.4.7.a Accumulation Time and Amount Limits

You are allowed to accumulate your hazardous waste and universal waste on-site in containers or tanks for a specified number of days. If you exceed this period, you must obtain an operating license for the storage facility from the WHMD. These limits are determined by your generator status and are identified in Table 2.7.

TABLE 2.7: ACCUMULATION TIME AND AMOUNT LIMITS

	CESQG	SQG	LQG	SQH	LQH
Storage Time Limit	No state time limit if don't exceed volume limit	180 days (or 270 if distance to disposal site is over 200 miles)	90 days	1 year from generation or receiving from another handler	1 year from generation or receiving from another handler
Total Limit	2,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	13,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	No limit	<11,000 pounds	No limit

Hazardous Waste

During this time period, hazardous waste must be properly stored at your facility to prevent contamination of the environment. You must comply with specific state and federal regulations if your company has a Small Quantity Generator or a Large Quantity Generator status. If you are a Conditionally Exempt Small Quantity Generator, you are not required by law to meet all of the requirements providing you do not exceed the 2,200 pounds of non-acute hazardous waste accumulation limit. However, you must still operate your business in a manner to prevent contamination and you are responsible for any contamination that occurs. It is recommended conditionally exempt generators practice storage, secondary containment, and inspection procedures similar to those required of the Small Quantity Generators to provide safeguards against environmental contamination.

Universal Waste

Universal waste handlers can accumulate universal waste up to one year after generation or after receiving the waste from another handler. A longer storage time may be allowed if it is proven that it's necessary to accumulate enough universal waste to facilitate proper recovery, treatment, or disposal. A handler must be able to show how long they have had the waste. This can be done by one of the following:

- Labeling the container with the first date universal waste was put into it or when the container was received.

- Labeling the individual item with the date it was considered a waste or received as a universal waste.
- Maintaining an inventory system on-site which identifies the date it became a waste or was received.
- Placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste was put in that area.
- Using any other method that clearly demonstrates how long the universal waste has been accumulating.

Transporters may store universal waste up to ten days. If transporters exceed this period, they need to manage the universal waste according to the respective handler requirements.

2.4.7.b Container and Tank Requirements

Hazardous Waste

Hazardous waste is commonly stored in either portable containers with lids such as pails, 55-gallon drums, totes, or in aboveground storage tanks. It can also be stored in underground storage tanks, although it is not usually practical for Small Quantity or Conditionally Exempt Small Quantity Generators due to the costs to install, maintain, and monitor the tanks. Hazardous waste tanks have more regulations than containers. Generally, hazardous waste tanks must have secondary containment and leak detection systems, special requirements for ignitable, reactive, and incompatible wastes, and closure and post-closure requirements. Once each operating day the overfill/spill control equipment, monitoring equipment data, and the level of the waste in aboveground storage tank systems must be inspected. For underground storage tanks containing hazardous waste, a complete inventory of the contents must be conducted at least twice every month. Records of these inspections and analyses must be kept for three years. If you have waste tanks, you may want to review the tank inspection checklist for your company's generator status for more requirements. It is available at **www.michigan.gov/deqwaste**.

Contact your local WHMD district office for information regarding specific hazardous waste storage tank requirements. See Chapter 2.4.8.a for used oil requirements. In addition, the DEQ WHMD Storage Tank Program regulates aboveground storage of flammable and combustible liquids, including waste, with a flashpoint of less than 200 degrees Fahrenheit (see Chapter 4.3 for more information). The aboveground storage of flammable and combustible liquids may also be regulated by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids, and the local municipality's fire prevention code (see Chapters 34 and 38 for more information).

Different containers should be used to segregate different types of waste. It is a good management practice to keep a waste log for liquid wastes noting the type and quantity of waste added to the container. Avoid overfilling containers, especially if they are stored outdoors. Fifty-five gallons of some hazardous liquids can expand to 60 gallons or more when exposed to the heat and sun and may overflow. It is also a good idea to use drip pans under the spigots of containers storing liquid materials. Make sure the drip pans are routinely emptied into the appropriate waste container.

The waste regulations do not require generators to post Hazardous Waste Storage Area signs alerting people of hazardous waste accumulation areas although it is considered a good management practice. Post “No Smoking” signs in areas where ignitable, reactive or incompatible wastes are located.

BASIC CONTAINER STORAGE REQUIREMENTS

See Chapter 2.4.8.a for satellite container operating requirements. General requirements for all other hazardous waste storage containers include:

- Containers must be labeled (see Chapter 2.4.8).
- Containers must be maintained in good condition.
- Any leaking containers must be replaced.
- Containers must be kept closed except when adding or removing waste.
- Containers must be compatible with the type of waste being stored in them. The DEQ does not maintain a list of compatible materials but companies can look at the MSDS sheets for suggestions and websites such as **www.flw.com/material/index.html**.
- Incompatible wastes must not be placed in the same container.
- All containers holding hazardous materials must be inspected weekly for signs of corrosion and leaks. The rules do not define "weekly" and a facility can decide what will be the days they want to be considered their "week." The inspections do not have to be done on the same day. The inspectors are looking at whether or not inspections have been done on a regular basis.

  ✓ Large Quantity Generators are required to keep written documentation of inspections for at least three years.

  ✓ Small Quantity Generators and Conditionally Exempt Small Quantity Generators are encouraged to keep records.

  WHMD has the **“Required Weekly Hazardous Waste Maintenance Checklist”** available for your use in meeting this record keeping requirement, but you are not required to use this form.

- Containers must be kept in an area that meets the required isolation distance from property lines. Check for any local requirements. Large Quantity Generators must have ignitable and reactive hazardous waste stored at least 50 feet from the property line. If a company can not meet the isolation distance, see R 299.9306(1)(a) which allows compliance with local fire code to be acceptable. A copy of an approved letter indicating the containers are stored in compliance with the fire prevention code and signed by the authority having oversight of that code shall be maintained at the generator's site.

- Containers must be protected from weather and fire and secure from vandalism and physical damage such as that caused by fork lifts or other equipment. Weather protection is to avoid bulging and damaged drums caused by contents freezing in cold temperatures or expanding due to heat.

- Keep adequate aisle space for unobstructed movement of emergency equipment and personnel. The waste regulations do not specify a minimum specific distance for aisle space. You should review applicable MIOSHA regulations, local fire code, and NFPA standards to see if a minimum aisle space is applicable to your facilities.

- Precautions must be taken to prevent containers holding flammable and combustible hazardous waste from igniting. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical, and mechanical sparks; spontaneous ignition, including heat producing chemical reactions; and radiant heat.

  The flammable and combustible liquid rules require metal containers to be bonded and/or grounded usually by using a bonding strip and ground clamps. Bonding physically connects two conductive objects together with a bond wire to eliminate a difference in static charge potential between them, but there is still the change of difference between objects and ground. Grounding uses a ground wire to eliminate the difference in the static charge between objects and the ground. The flammable and combustible liquid regulations also prohibit smoking except in designated localities and “No Smoking” signs must be conspicuously posted where hazard from flammable liquid vapors is normally present. No smoking signs are also required for large quantity generators storing reactive hazardous waste. Also see Chapter 34 for additional MIOSHA requirements for containers containing flammable and combustible liquids.

  Some insurance companies may require all hazardous waste drums to be grounded. In addition, some local fire ordinances may require grounding clamps on hazardous waste containers. If a facility is considering using metal flooring, the flooring and containers must have bond wires and meet MIOSHA standards. Contact your local electrical or building code inspector to see what is required including if the use of a grid or steel floor would be acceptable.

SECONDARY CONTAINMENT

Secondary containment of the hazardous waste accumulation area is required for the following generators but is not required for satellite containers:

- Small Quantity Generators accumulating over 1,000 kg (2,200 pounds) of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.

- Large Quantity Generators accumulating any amount of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.

Liquid hazardous waste and the above-mentioned “F” wastes must have secondary containment or be managed according to the following:

- The base must be free of cracks and have an impervious surface.

- The containment area must be constructed so that it is able to hold either 10 percent of the total liquid volume of all the containers or 100 percent of the volume of the largest container, whichever is greater. If, however, a loss from one container can lead to losses from other containers, the enclosed area must be able to contain 100 percent of all the liquid portion stored in all the containers.

- The secondary containment area must be designed to prevent run-on or be designed with sufficient excess capacity to contain any rainwater or snowmelt or other precipitation that might accumulate in the storage area. It is recommended that containers be stored in areas protected from the weather, if possible.

- The containers must be elevated or put on a sloped base that prevents them from coming into contact with any liquid accumulating within the containment area.

- All spills, leaks, and precipitation must be removed in a timely manner to prevent overflow from the containment area.

Other solid hazardous waste in containers can be put in containment areas where the containers are not in contact with accumulated liquids including precipitation. The containers can be either:

- Elevated, or otherwise protected; OR
- Stored on a sloped surface, or the containment area can be of another design and operated to drain and remove precipitation.

The hazardous waste regulations do not specify exactly how secondary containment areas must be constructed. You can install a curb, a ramped pad, or a containment room; have structures custom-made for your situation; or use commercially available portable pallets that have a holding structure included in their design. Be aware that the spill pallets are not sufficient to meet the secondary containment requirements for liquid hazardous waste because they do not provide adequate protection for “squirt distance,” which is the distance a liquid would spurt out if a leak occurred. Other design factors and regulations should also be considered when planning secondary containment. See Chapter 6.1 for more information about secondary containment and storage of other materials besides waste.

AIR EMISSION CONTROL REQUIREMENTS (SUBPART AA, BB, CC)

There are additional federal hazardous waste regulations regarding air emissions of hazardous waste. The RCRA air emission standards were promulgated in phases. The first phase includes 40 CFR Part 264/265, Subparts AA and BB. These subparts address air emissions from process vents associated with certain types of hazardous waste management processes (Subpart AA) and leaks from certain types of equipment at TSDFs and large quantity generators (Subpart BB). At such facilities, owners and operators are required to install control equipment and employ management practices to reduce air emissions from affected units and equipment. Phase II of the RCRA air emission standards, Part 264/265, Subpart CC, regulates organic air emissions from tanks, surface impoundments, and containers located at hazardous waste treatment storage and disposal facilities and large quantity generators. If applicable, use various monitoring and control mechanisms to meet Subpart CC requirements:

- Control volatile organic compound (VOC) emissions from hazardous waste management activities.

- Reduce organic emissions from process vents associated with certain recycling activities and equipment that is in contact with hazardous waste that has significant organic content.
- Control VOCs from hazardous waste tanks, surface impoundments, and containers using fixed roofs, floating roofs, or closed-vent systems routed to control devices.

The air emissions standards in Part 265, Subpart CC, do not extend to containers used for satellite accumulation. These requirements are too complex to include in this guidebook. Discuss the requirements for your company with your environmental consultant or WHMD district office, or go to EPA guidance at **www.epa.gov/epaoswer/hotline/training/air.pdf** and RCRA Organic Air Emission Standards for TSDFs and Generators for more information on these requirements.

Universal Waste

Universal waste must be stored in a way that prevents any spills or releases. Containers must be kept closed, in good condition, and be compatible with the type of universal waste stored in them.

2.4.8 Labeling Requirements

The proper labeling of waste helps to ensure that it is not mismanaged. It is a good idea to put one person in charge of making sure the wastes are correctly identified and labeled. Labeling also helps to protect the workers. If the contents of drums are not known, the chances of a worker being exposed to hazards or being injured are great. An explosion can occur if wastes that are incompatible are mixed with unknown wastes in a drum.

Labeling requirements differ for hazardous waste being accumulated on-site and that being shipped. More extensive information is required on labels for shipping. In addition to meeting the labeling requirements for containers, you should also clearly mark the accumulation area so employees know that hazardous waste is being kept there, and any special precautions like no smoking signs, etc.

The USDOT regulations specify which containers, packaging, labels, and placards must be used for shipping hazardous materials. The hazardous waste regulations require Small Quantity and Large Quantity Generators and Universal Waste Handlers to have the appropriate placards available for the transporter. Placards are required for hazardous waste shipments in excess of 1000 pounds. For more information about these shipping requirements, go to the Michigan State Police, Traffic Safety Division at **www.michigan.gov/motorcarrier** and the USDOT at **hazmat.dot.gov** websites. Also see Chapter 4.4.

2.4.8.a Labeling Hazardous Waste Satellite Containers

It is permissible to accumulate up to a total of 55 gallons of hazardous waste, or one quart of acutely or severely toxic hazardous waste, in labeled container(s) at the point of generation as long as the operator has control of the processes generating the waste. This accumulation is generally referred to as using satellite containers. These containers must be labeled with the words "Hazardous Waste" AND the waste number OR the chemical name of the contents, and be kept closed at all times except when waste is being added. There is no limit on the number of containers used at one satellite location or how long the satellite container can be kept at its location, as long as it is being used on a regular basis and the total volume limit is not exceeded. Once the volume exceeds the allowable amount, the container holding the excess accumulation must be:

- Labeled with that date (which would be considered the accumulation date).
- Labeled with the hazardous waste number if the chemical name was initially used on the label.
- Moved into the accumulation area within three days.

2.4.8.b Labeling Hazardous Waste for Accumulation On-Site

Each container must be labeled with the following when a waste is accumulated on-site and not in a satellite area:

- The words "Hazardous Waste".
- The hazardous waste number.
- An accumulation date (meaning the date waste was first put into the container, unless it was first a satellite container – then it would be the date the volume in the container met or exceeded the allowable amount).

Although not required, it is helpful for employees to also label the storage containers with the common name of the waste with which it is being filled. For example, containers might be labeled with "Used Parts Washer."

You are not required to use any specific label to meet these requirements. You can stencil the information on the containers or you can purchase commercially made labels. You may also use the shipping label as long as the above information is filled out. Make sure the label you use does not become unreadable or dissolve if exposed to the weather or hazardous materials. This can be a problem with containers holding solvents.

2.4.8.c Labeling Hazardous Waste for Shipment

Hazardous waste must be shipped in containers acceptable for transportation and properly labeled. Each container of 110 gallons or less must have the hazardous waste number identifying the waste as well as the following statement:

> *"Hazardous Waste – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."*

A container must also have the headings "Generator Name and Address" and "Manifest

Document Number," with that information provided. This label and others are available from commercial firms including mail order companies. Properly labeled containers also include:

- Labels clearly identifying the type of waste and its hazards in that particular container.
- The accumulation date.
- Words or symbols for characteristics such as "flammable" and "corrosive" that are clear and understandable to employees.
- Label protection from solvents and weather. You may want to cover the label with varnish or clear packing tape and keep the container under roof cover.

Your hazardous waste transporter should be able to help you properly label the containers for transport. Contact the USDOT for additional transportation requirements.

2.4.8.d Labeling Universal Waste for Accumulation On-Site

You need to label the individual universal waste (such as each thermostat) or the container holding the universal waste with the following while it is being accumulated:

- Electric lamps: the words "universal waste electric lamps," or "waste electric lamps," or "used electric lamps."
- Consumer electronics: "universal waste electronics" or "universal waste consumer electronics"
- Batteries: the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)."
- Mercury devices: the words "universal waste mercury thermometers," or "waste mercury thermometers," or "used mercury thermometers," and substitute the name of the device if it is not a thermometer.
- Pesticides: include the legible label that was on or accompanied the original product and the words "universal waste pesticide(s)" or "waste pesticide(s)." If the pesticide label is not readable, then use the appropriate label as required by the USDOT.
- Pharmaceuticals: use the original label. If unreadable, it is suggested to label as "universal waste pharmaceuticals."

2.4.8.e Labeling Universal Waste for Shipment

Before shipping the universal waste to another universal waste handler, the originating handler must have made arrangements so that the shipment will be received. If the universal waste is a hazardous material under USDOT regulations, then that waste has to be packaged, labeled, marked, and placarded according to the requirements under 49 CFR 172-180. Discuss these requirements with MSP or USDOT (see Chapter 4.4).

2.4.9 Managing Specific Waste Streams

This section provides details regarding the proper management of various types of waste that are commonly found in manufacturing operations.

2.4.9.a Used Oil
2.4.9.b Used Oil Filters
2.4.9.c Lead Acid Batteries
2.4.9.d Dry Cell Batteries
2.4.9.e Fluorescent Lamps and Other Lights
2.4.9.f Small Capacitors and Ballasts
2.4.9.g Sorbents
2.4.9.h Shop Towels and Other Textiles
2.4.9.i Spent Parts Washer and Other Solvents
2.4.9.j Aerosols
2.4.9.k Painting Wastes
2.4.9.l Wastes Containing Silver and Other Precious Metals
2.4.9.m Electronic Waste (computers etc)
2.4.9.n Waste Containing Radioactive Materials
2.4.9.o Antifreeze
2.4.9.p Scrap metal

2.4.9.a Used Oil

Used oil in a liquid form CANNOT be disposed of by any of the following methods:

- Dumped down drains or sewers or into surface or groundwater.
- Disposed of in landfills.
- Burned in municipal solid waste incinerators or other incinerators without energy recovery.
- Used as dust control or weed control.

The specific management requirements depend on the type of oil, its flashpoint, how it is stored, hazardous waste generator status, and how much oil storage capacity is on-site. When evaluating what requirements apply to your used oil, keep in mind the regulations define oil differently. Used oil defined by Part 111 of Act 451 rules, federal used oil regulations in 40 CFR Part 279, and Part 121 is "any oil which has been refined from crude oil, or any synthetic oil, which has been used and as a result of use, is contaminated with physical or chemical impurities." Examples of used oil include:

- used motor oil.
- used hydraulic oil.
- used transmission and brake fluids.
- spent synthetic cutting and machine oils.
- spent mineral seal oils.
- spent quench oils.
- spent gear oils.
- non-PCB transformer oils.
- CFC-contaminated oils from air-conditioning and refrigeration units.
- Oil-water mixtures if sufficient oil exists for legitimate recycling and oil does not arise from "de minimis" sources. De minimis means small spills, leaks, or other drippings from pumps, machinery, pipes, and other similar equipment during normal operations. [40CFR279.10(f)].
- Oil drippings from metal shavings from turning and drawing operations, etc.

Used oil under the hazardous waste regulations does not include petroleum-based products that are not used as lubricating agents or in other protective applications. It does not include fuels (gasoline, diesel, and fuel oils), mineral spirits, animal fats and vegetable oils, along with test and calibration fluids. Note: all of these above materials would be subject to the federal SPCC regulations (see Chapter 6.2.3 and state Part 5 rules (see Chapter 6.2.2).

If used oil has a flashpoint below 200 degrees Fahrenheit, then it is also regulated as flammable and combustible liquids in addition to the waste regulations (see Chapters 4.3.2 and 34).

Used oil being recycled which contains less than 1,000 ppmw total halogens is not considered hazardous waste and is managed as a liquid industrial waste under Part 121 of Act 451 when it is accumulated, stored, or treated. However, the following oils are not presumed to be hazardous waste even if the total halogens are greater than 1,000 ppmw:

- Metalworking oils or fluids that contain chlorinated paraffin's which are recycled and handled by a tolling arrangement per 40 CFR 279.24(c). A tolling arrangement is a contractual agreement where the oil or fluid is reclaimed and returned to the generator as a lubricant, cutting oil, or coolant. These oils would still need to be manifested as liquid industrial waste (see Chapter 2.4.5.a).

- Oils containing chlorofluorocarbons (CFCs) removed only from refrigeration units and being reclaimed. These oils would still need to be manifested as liquid industrial waste.

Used oil is presumed to be mixed with hazardous waste under Part 111 of Act 451 if it contains more than 1,000 ppmw total halogens - a test for chlorine, bromine, fluorine, and iodine content. Most haulers will do a quick test for total halogens before picking up the oil or require you to provide characterization information. You have the option to demonstrate that the used oil does not contain significant concentrations of halogenated hazardous constituents which are listed in 40 CFR 261, Appendix VIII, and thus would not be regulated as hazardous waste. This demonstration is commonly called the "rebuttable presumption." The generator may use knowledge or testing to rebut the mixing presumption. If the generator has a MSDS sheet for the

oil being recycled which shows that it contains chlorinated paraffins, and can also demonstrate that no chlorinated solvents are used in the facility, this should be sufficient knowledge. A facility could also have a laboratory run a chlorinated solvent scan for common halogenated constituents including perc also known as tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene, carbon tetrachloride, chloroform, and other halogenated solvents suspected of contaminating the oil. If each halogenated constituent is below 100 ppm, then the oil would be considered to be liquid industrial waste. See the EPA "**RCRA Used Oil Rebuttable Presumption Guidance**" at **www.epa.gov/reg5rcra/wptdiv/usedoil/905-R-03-005.pdf** for more information.

Often the used oil transporter will conduct one or two tests at your site to determine if the used oil is a hazardous waste before accepting it. They usually charge a small fee for these tests. As an alternative, they may require you to determine if the used oil is a hazardous waste and provide them with documentation supporting your results. If the used oil is a hazardous waste, then it must be managed as such.

See the following guidance documents for more details about managing used oil. They are available at **www.deq.state.mi.us/pubcenter**.

Household Do-It-Yourselfer Used Motor Oil and Filters — if employees are asking how to manage their own private vehicle's motor oil and also have used oil filters

Used Motor Oil Generator Requirements — for facilities that generate motor oils from servicing their own vehicles and equipment that meets certain conditions

Other Used Oil Generator Requirements — for facilities that generate other used oil types like cutting fluids, lubricating oils, oils from transformers, etc., or generate oils that don't meet the conditions listed in the used motor oil generator guidance

Used Oil Filters Generator Requirements — for facilities that generate used oil filters

Burning Used Oil — for facilities burning used oil generated on-site or operating an off-spec fuel burner

Used Oil Sorbents, Oil Contaminated Textiles, & Other Petroleum Contaminated Materials — for facilities that generate these wastes from cleaning up oil spills

Oil Water Separators — for facilities operating separators and managing the collected oil

Used Oil Collection Centers and Aggregation Points — for locations that collect oils from do-it-yourselfers, other companies, or from other locations owned by the same facility

Mobile Oil Changing Business — for companies that offer mobile services where they go to another business or residential location to change oil in vehicles or equipment

Emptying Product Tanks and Containers — for facilities removing materials due to tank closure, maintenance or repair activities

BASIC REQUIREMENTS FOR USED OIL STORAGE ON-SITE:

- Do not mix other wastes with used oil. This restriction applies to Large Quantity Generators and Small Quantity Generators mixing hazardous waste with used oil. Conditionally Exempt Small Quantity Generators of hazardous waste cannot mix halogenated wastes with used oil as of December 16, 2004. Check with recycler before mixing any wastes with used oil.
- Store only in containers or tanks that are in good condition and compatible with oil.

- Keep containers closed except when filling or emptying, and keep the exterior clean of waste and residue.
- Label each container or tank, including fill pipes to underground storage tanks, with the words “USED OIL.”
- Protect the accumulation containers from weather, fire, physical damage, and vandals.
- Regularly inspect tanks and accumulation areas for leaks or potential problems.
- Secondary containment is recommended for all oil storage, and is required if subject to the federal SPCC regulations (see Chapter 4).
- Check if any local ordinances pertain to oil storage.
- Provisions should be made to prevent further release if a leak occurs.

USED OIL BURNING AND ON-SITE USE:

A generator may use their used oil at the site:

- As a rust preventative coating on farm or construction equipment.
- By mixing it with diesel fuel and using it as a fuel in the generator’s own vehicles. Until mixed, the oil must be managed under the used oil regulations.
- As a fuel in a heater. See the ***Burning Used Oil*** guidance for the conditions it may be burned and discuss used oil burning with the AQD district office to determine if an air permit is required and WHMD district office to determine if other waste regulations apply.

If you have any questions about burning used oil, contact your AQD and WHMD district office (see Appendix C for phone numbers). See Chapter 1.1 for more details regarding air permitting.

2.4.9.b Used Oil Filters

It is recommended all used oil filters be recycled as scrap metal. Recyclers are listed in Oils and Solvents category of the Recycled Materials Market Directory. When recycled as scrap metal, the filters are not subject to hazardous waste regulations. Used oil filters being disposed are exempt from hazardous waste regulations if they are non-terne plated and hot-drained in a manner that removes the oil. See the Used Oil Filter Generator Requirements guidance for more information how to drain and prepare them for recycling or disposal.

2.4.9.c Lead Acid Batteries

Lead acid batteries are banned from disposal in Michigan's landfills and incinerators, so you need to return them for recycling. Recyclers can be found in the Miscellaneous category of the "Recycled Materials Market Directory." They can also be returned to retailers, distributors, or manufacturers.

Facilities have two options for managing lead acid batteries. Both options are described in more detail in the Universal Waste guidance at **www.deq.state.mi.us/documents/deq-ead-tas-univwaste.pdf**.

- Recycle them under R 299.9804 which exempts them from most of the requirements of Part 111 of Act 451. The generator must characterize the waste batteries and meet land disposal restrictions (see Chapter 2.4.5.c). You do not have to include the battery volume when determining your generator status or use manifests when shipping the used batteries to a recycler. In addition, there is no time limit in the state regulations on how long you may store the batteries before shipping. There may be local ordinances that have time limits or other requirements.
- Manage them as a universal waste. Universal waste batteries or containers need to be labeled with the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)." Meet the universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12

2.4.9.d Dry Cell Batteries

Dry cell batteries (AA, C, D etc) are used to power portable power tools, flashlights, calculators, etc. and found in computers, clocks, and other equipment.

Facilities have the option to:

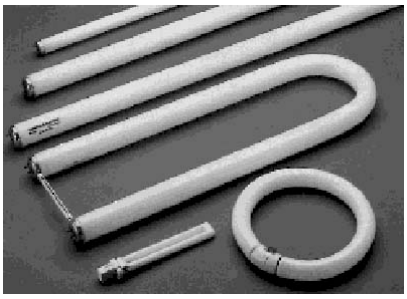
- Assume they are hazardous and manage them as universal waste. Recyclers can be found in the Miscellaneous category of the Recycled Materials Market Directory. Universal waste batteries or containers need to be labeled with the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)." Meet the other universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12.

or

- Determine if the batteries exhibit hazardous waste characteristics and dispose of them in accordance to the facility's generator status.

Both options are described in more detail, along with other regulations that pertain to batteries, in the Universal Waste guidance at **www.deq.state.mi.us/documents/deq-ead-tas-univwaste.pdf**.

2.4.9.e Fluorescent Lamps and Other Lights



Lamp management and disposal options depends on the type of bulbs and the company's generator status. See the Electric Lamp and Small Ballast guidance at **www.deq.state.mi.us/documents/deq-ead-tas-eleclamp.pdf** for more specific management requirements. DEQ recommends companies handle and recycle their spent lamps. Recyclers can be found in the Glass category of the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd**. DEQ does not recommend the use of drum top crushers. If you are considering the use of a lamp crusher, and preferably before buying a unit, see the guidance and contact DEQ's WHMD and AQD district offices (see Appendix C for phone numbers) and DLEG, Consultation Education and Training Division Program at (517) 322-1809 to discuss operating and permitting requirements.

Basic lamp management options include:

1. Determine if you have low mercury bulbs, commonly called green tip bulbs, which are designed by the manufacturers not to be a hazardous waste. Keep documentation supporting that determination like the MSDS or sales literature that may have a statement the lamps are not a hazardous waste or not a RCRA waste. Recycling of low mercury bulbs is recommended to reduce a company's liability in case contamination eventually occurs at the landfill where the solid waste was sent. However, at this time these non-hazardous bulbs can be put in the trash if the hauler and licensed disposal facility will accept.

2. Assume they are hazardous waste and manage them as universal waste. Most recyclers only want to handle unbroken/uncrushed lamps. Broken lamps can not be handled as universal waste in Michigan. Label the individual lamps or containers with the words "Universal Waste Electric Lamps," "Waste Electric Lamps", or "Used Electric Lamps." Meet the other universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12.

3. Determine if the bulbs or residue are a hazardous waste when the lamps aren't handled as universal waste or when they are broken/crushed by either assuming they are hazardous waste, using knowledge about the lamps, such as documentation from the lamp manufacturer, or by testing. If testing is done, the commonly used lamps would be hazardous waste if the Toxicity Characteristic Leaching Procedure (TCLP) results meet or exceed the following limits:

- ✓ Fluorescent and HID lamps or other lamps containing mercury at concentrations of 0.2 mg/l or more are a D009 hazardous waste.
- ✓ Incandescent or other lamps containing lead at concentrations of 5.0 mg/l or more are a D008 hazardous waste.

Disposal options of hazardous waste bulbs will depend on the company's generator status. At this time Conditionally Exempt Small Quantity Generator may put the bulbs in the trash if the hauler and licensed solid waste disposal facility will accept them. Some won't because of safety concerns for their employees. A SQG and LQG would need to dispose of them as hazardous waste when they are not recycled.

Please be aware that there has been proposed legislation that would prohibit the disposal of fluorescent bulbs in landfills. If passed, it will affect disposal options.

2.4.9.f Small Capacitors and Ballasts

If small capacitors and ballasts are intact, non-leaking, and contain less than 50 ppm polychlorinated biphenyls (PCBs), they may be disposed of in a licensed landfill, if the landfill authority will accept them. Some ballasts will have "No PCBs" on the label. Contact the landfill about their acceptance policy. If a company is doing a re-lamping project or getting rid of a number of devices at one time, the landfill may not take them. It is recommended to pack the devices in an US DOT approved drum with adequate absorbent such as sawdust or soil to absorb any potential liquid in the device and label the container. If no free liquids are present, there are no manifesting requirements.

If the devices are leaking, or contain 50 ppm PCBs or more, or you need a list of PCB disposal sites, or more information about PCBs in devices, see Chapter 4.5.4 and the "TSCA Disposal Requirements for Fluorescent Light Ballasts" at **www.epa.gov/epaoswer/hazwaste/pcbs/pubs/ballastchart.pdf**. This chapter discusses PCB management and disposal requirements under the Toxic Substances Control Act (TSCA).

Questions regarding management and disposal of PCB articles should be directed to EPA, Region 5, Office of Pesticides and Toxic Substances at (312) 886-7061. Additional information can be found on the web site at **www.epa.gov/pcb**.

2.4.9.g Sorbents

Sorbents used to clean up spills can be sent to a licensed sanitary landfill (Type II) if:

1. The landfill will accept them. Check with the landfill operator; and
2. The sorbents contain no free liquids (they pass the paint filter test); and
3. The materials are either of the following:
   - ✓ Are not a hazardous waste, including sorbents used for oil spills.
   - ✓ Are a hazardous waste generated by a Conditionally Exempt Small Quantity Generator.

Except under specific circumstances, it is not permissible to intentionally add wastes, including used oil, to sorbents for disposal in a landfill. Used sorbents that are not considered hazardous waste and do not pass the paint filter test must be handled as a liquid industrial waste.

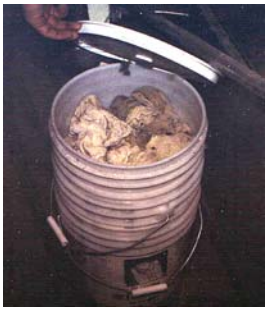
Generators must handle the sorbents as hazardous waste if the material was used to clean up listed hazardous waste. Generators must also evaluate used sorbents to determine whether they exhibit one or more hazardous waste characteristic and manage them appropriately. This volume of hazardous waste needs to be included in calculating your generator status. Remember that this quantity could affect your generator status and, therefore, your requirements.

A WHMD permit is not required to add absorbent materials to hazardous waste in a container if all the conditions in R 299.9503(1)(h) are met and the treatment does not violate the land disposal restriction requirements.

Some companies offer services where used sorbents are returned to them for oil recovery and then the sorbents are able to be reused. Search the internet or search for recyclers listed in Oils and Solvents category of the Recycled Materials Market Directory by using the term "sorbent."

For manufacturers and suppliers of sorbents containing recycled materials, go to **www.epa.gov/cpg/products/sorbents.htm**.

2.4.9.h Shop Towels and Other Textiles



Disposable rags, uniforms, gloves, and other textiles must be handled as a hazardous waste if they contain free liquids that have a flashpoint below 140 degrees Fahrenheit, were used with a listed waste (commonly the F001-F005 solvents), or have other hazardous waste characteristics. This also applies to reusable materials that are being discarded. If textiles were used as a sorbent to clean up spills, also see Chapter 2.4.9.g.

Textiles that are spontaneously combustible are a D001 hazardous waste. When determining the waste code for the textiles used with solvents, it is necessary to determine if it is a listed or characteristic hazardous waste. This distinction is based on whether the solvent is a waste before or after the textile is used.

- If a listed solvent is put onto the textile and the textile is subsequently used to clean a part, the facility needs to determine if the resulting waste is characteristically hazardous.
- If the listed solvent is put onto the part and the textile is then used to remove the excess solvent waste, the textile is automatically a listed hazardous waste.

Note: EPA is considering a proposed rule that may change the above regarding listed solvents and textiles. Discuss with WHMD district office for current status.

MIOSHA has requirements that rags or waste be put into metal waste cans immediately after use. In addition, the contents of the waste cans are to be properly disposed of at least once daily at the end of each shift. Discuss with MIOSHA Consultation Education and Training Division at (517) 322-1809.

The volume of discarded textiles needs to be included when calculating your hazardous waste generator status. It is estimated that a 55-gallon drum holds approximately 125 pounds of used rags without free liquids, but the weight varies with the textiles.

Reusable textiles are exempt from the hazardous waste regulations if the textiles meet all of the following requirements:

- Textiles are being laundered or dry-cleaned for reuse.
- Textiles do not contain free liquids (i.e., you cannot squeeze any liquid from the textiles).
- The containers used to store the textiles do not contain free liquids.
- Hazardous waste is not mixed with the textile after its original use.

Let your cleaning company know what type of chemicals you are using with these materials so they can determine the best way to clean them and the affect on their own waste stream. Reusable textiles being sent for cleaning are not included when calculating your hazardous waste generator status.

> **Caution:** There have been some instances where textiles have been exposed to chemicals from other business operations when shipped off site for cleaning. If your company has a sensitive process, you may want to make arrangement with the cleaning company that your textiles are cleaned separately from other rags and only your rags are returned to your company.

2.4.9.i Spent Parts Washer and Other Solvents

There are several different types of solvents used in parts washers, and the management of the used solvent and the generated sludge depends on if it is a hazardous waste or not (see Chapter 2.4.9.h for information about solvents on rags). Spent solvent and sludge can be either a listed or characteristic hazardous waste, depending on the chemical and contamination sources. Cross contamination is a concern, especially in facilities without strict policies prohibiting employees from using parts washer fluids to clean other equipment or mixing other wastes with it or in facilities using aerosols. Two common situations when cross contamination occurs is when employees:

- Mix solvents used to clean out paint guns from the maintenance area with the used parts washer fluids creating a listed F005 hazardous waste by the mixture rule
- Add other degreasers that contain tetrachloroethylene (TCE), which is also known as perchloroethylene (Perc), to the parts washer solvents. One suspected practice that may cause contamination involves using aerosol products containing TCE on a part to accelerate the cleaning action and then putting that part into the parts washer. The used parts washer may also become a D039 waste if the TCLP concentration for TCE exceeds 0.7 milligrams per liter.

Common parts washer fluids include the following:

- Mineral spirits (naphtha or Stoddard solvent) are commonly used. Products containing mineral spirits have variable flashpoints. Mineral spirits with a flashpoint of 140 degrees Fahrenheit and above are not a hazardous waste due to their ignitable characteristic but may be contaminated with other hazardous waste constituents through use requiring them to be managed as hazardous waste. However, mineral spirits with a flashpoint below 140 degrees Fahrenheit are classified as a D001 hazardous waste. Usually the mineral spirits with the lower flashpoint are redistilled and reused, while the nonhazardous liquids are often disposed of instead of being recycled.
- Aqueous cleaners are a recommended replacement for the other solvent types for several reasons, even though some aqueous cleaning formulations contain solvent additives such as terpenes, glycol ethers, and alcohols. The aqueous cleaners contain less volatile organic compounds (VOCs), are usually less toxic, and are generally nonhazardous waste unless they have been contaminated with a listed waste or have acquired a contaminant that causes the solvent to exhibit a hazardous waste characteristic. One way to manage spent aqueous washers is to discharge this waste stream to a municipal sewer system, if the company has permission from the sewer authority to do so.
- Methylene chloride is occasionally used as a paint remover or to clean carburetors or “white metals” such as die cast zinc or aluminum. Spent methylene chloride used for degreasing usually has a waste code of F001. If it is contaminated with other wastes, however, it may also have a waste code of F005.

Facilities should evaluate the parts washers they are using to determine if an alternative product can provide the same desired results without generating hazardous waste. Management can also reduce the chance of cross contamination by controlling the inventory of products used at the facility and educating their employees on the importance of not contaminating the parts washer with other wastes. See Chapter 1 or discuss with your AQD district office questions regarding VOCs emission calculations. In addition, air quality regulations require that parts washer lids be kept closed when not in use on units if the solvents contain regulated VOCs (see Chapter 1.4). If facility is a LQG, also see Chapter 2.4.7.b section on air emissions.

ON-SITE SOLVENT RECYCLING

Facilities that use large volumes of solvents should consider recycling the used solvents on-site. Still manufacturers can be found on the EPA vendor website at **es.epa.gov/vendors/index.html** or search the Internet. See Chapter 12.1.5.e for more information on solvent pollution prevention.

> **Tip:** Go to **www.cleanersolutions.org** for information and resources about solvent and process alternatives for parts cleaning and degreasing and see Chapter 12.1 for other pollution prevention tips.

It is not necessary to obtain a hazardous waste permit to recycle solvents at the site of generation, but there are requirements to operate a solvent distillation unit or still.

- Manage the solvents both prior to and after recycling under the appropriate hazardous or liquid industrial waste regulations depending on the type of solvent.
- Keep a log of the amount of waste treated onsite. This amount needs to be included when calculating the company's hazardous waste generator status (see sample calculation below). These logs can also be helpful to document how you handled your waste when you want to sell your business and a Baseline Environmental Assessment is being done (see Chapter 7).
- Meet the generator hazardous waste requirements while managing solvents on-site (e.g. labeling, containers, containment, etc).
- Use units approved or listed in accordance with UL 2208 Standard for Solvent Distillation Units
- Locate still according to manufacturers' instructions and away from ignition sources.
- Only use with materials specifically listed on the still label or instruction booklet.
- Meet flammable and combustible liquids and waste storage requirements. The NFPA 30 adopted in the flammable and combustible liquid rules have requirements for stills. However, there are several types of operations that are exempted in Chapter 5.11 including stills used in research, testing, or experimental processes, petroleum refineries, chemical plants, or dry cleaners.
- Do not exceed 60 gallon batch capacity. An air quality permit may be necessary if there are air emissions or the still exceeds 55 gallons batch capacity. Check with the AQD district office (see Appendix C for phone numbers) if you are considering using a still.
- Check if the local fire department and your insurance company have requirements for still operations.
- Periodically review the servicing schedule to determine if the best solvent is being used and the schedule meets the facility's solvent requirements.

OFF-SITE SOLVENT RECYCLING

A manufacturer may ship the used solvents off-site to a commercial recycler for reclamation. Recyclers can be found in the Oils and Solvents category of the Recycled Materials Market Directory. Confirm they are a permitted and registered transporter and meet waste manifest requirements. This waste would be counted towards your generator status. A Small Quantity Generator may ship solvents for reclamation under a tolling arrangement as discussed in Chapter 2.4.5.a. Call your WHMD district office (see Appendix C for phone numbers) if you have any questions about reuse or recycling of solvents.

How do I calculate the amount of hazardous waste generated from a recycling still?

The following scenario is given as an example on how to count the solvent used and put through a recycling unit and the sludge from the unit when determining your generator status. The original solvent is counted once during the calendar month, plus any additional solvent added during the month, and any generated still bottoms. The count starts new every calendar month. Counting waste is addressed in R 299.9205(5).

A company with a painting line uses acetone to clean the paint gun and line. Acetone is a F003 listed solvent. To save on purchasing costs of buying more cleaning chemicals and reduce hazardous waste disposal costs, the company weekly uses a 5 gallon capacity still to recycle the used acetone waste. They collect spent acetone in satellite containers until they put the used solvent into the recycling unit.

June Week 1, an employee put 5 gallons of spent solvent in the still and got 4 ½ gallons cleaned solvent and ½ gallon sludge. Need to count the 5 gallons of spent solvent. They then took the 4 ½ reclaimed gallons and added ½ gallon new product and used it to clean the equipment.

June Week 2, an employee put another 5 gallons of spent solvent in the still and got 4 ½ gallons cleaned solvent and ½ gallon sludge. Since 4 ½ gallons of solvent had already been included in the Week 1 calculation, this week they only count the 1/2 gallon of additional virgin solvent that was used and ½ gallon sludge towards the generator status.

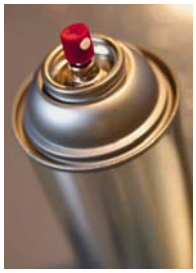
June Week 3, repeat of week 2

June Week 4, repeat of week 2

In this scenario, they add 5 + ½ + ½ + ½ (solvent) + ½ +½ + ½ (sludge) = 8 ½ gallons of hazardous waste was generated in June from solvent use and recycling.

Week	Solvent in gallons	Sludge in gallons	
1	5		The sludge is not counted this first week because the waste is included in the initial amount of used solvent put into the still.
2	1/2	1/2	Need to count the new solvent that was used and the amount of sludge generated this week
3	1/2	1/2	
4	1/2	1/2	
subtotal	6 1/2	1.5	
	6 ½ gallons X 6.64 acetone weight pounds/gallon		43.16 pounds of liquid acetone hazardous waste generated in month
	1.5 gallons X 8.5 pounds/gallon		12.75 pounds of hazardous waste sludge generated in month
	Acetone liquid waste + sludge		55.91 pounds of hazardous waste

2.4.9.j Aerosols



Aerosols are a commonly overlooked hazardous waste and industry uses numerous spray cans including degreasers, paints, etc. Residues in aerosol containers are exempt from the hazardous waste regulations if the cans are "empty," which means the pressure in the container approaches atmospheric pressure and they contain less than one inch of non-acute residue. One practical test is to turn the aerosol can upside down and press down on the nozzle. If you don't hear or see anything and the can feels light, it is usually empty. This quick test is not accurate if the nozzle is blocked. It is recommended to recycle empty cans for scrap metal where possible. Unfortunately, salvage yards in some areas of the state will not accept them at this time. Check with your local salvage yard or look for recyclers of empty cans in the Recycled Materials Market Directory under the Metals category.

If the spray can contains product and it needs to be disposed of, you must determine if it is a hazardous waste. Not only is it illegal to intentionally spray out the can's contents just so it meets the "empty" definition, it is also costly in lost product. Look at the MSDS or label to help determine if any of its contents are a hazardous waste:

- Are the cans contaminated with "F" listed solvents? On occasion an aerosol is F-listed if, for example, the outside of the aerosol can was contaminated with a spent solvent on the "F" list. That is because the container would be considered to be contaminated by the waste and therefore due to the "mixture rule" it would be an "F" listed waste. Unwanted solvents in the aerosol cans are not normally "F" listed because the solvent has not yet been used.
- Do the contents have the single active ingredient on the "U" or "P" list?
- Do the contents display one or more of the characteristics? Cans containing flammable propellants or other ingredients would be ignitable (D001). Some products may be reactive (D003).

For example, aerosols products containing a mixture of tetrachloroethylene (perc) in regulated concentrations of 0.7 mg/L or more with other ingredients is a D039 waste. If the unwanted aerosol product is perc, it would be U210.

Tip: Consider using products in refillable containers to reduce disposal costs of containers that are hazardous waste only because of the aerosol propellant. There are some metal containers that can be pressurized with air compressors or plastic containers that are pressurized by hand pumps or squeeze triggers.

AEROSOL CAN CRUSHERS AND PUNCTURING DEVICES

Aerosol can crushing and puncturing devices normally fit onto a 55-gallon drum. If you are considering operating an aerosol can device, first contact DEQ's WHMD and AQD district offices (see Appendix C for phone numbers) and MIOSHA, Consultation Education and Training Division at (517) 322-1809 to discuss any operating and permitting requirements. It may be possible to meet an air permitting exemption. To be exempt from a WHMD hazardous waste permit and license, Small Quantity Generators and Large Quantity Generators must meet the requirements of the hazardous waste rule R 299.9503(1)(i). This includes, but is not limited to,

container management, secondary containment, and preparedness and prevention requirements. Conditionally Exempt Small Quantity Generators are not subject to this rule.

If you have a can crushing device, determine if the device/container is being operated as a:

- Satellite container while being filled (see conditions Chapter 2.4.8.a)

OR

- Hazardous waste accumulation container and meet applicable requirements for your generator status

Facilities must characterize the carbon filters when they are replaced, and any liquids collected in the process, to determine if these materials are a hazardous waste. The collected waste is often flammable (D001) waste so you will want to ensure that no sparking or smoking occurs near the device and meet the other regulations pertaining to flammable and ignitable liquids (See Chapter 4). Other waste codes may apply depending on the products being used. In addition, Large Quantity Generators may be subject to the 40 CFR 264 and 265 Subpart BB and CC air emission requirements. Direct any questions to the WHMD district office.

2.4.9.k Painting Wastes

Proper characterization of air filters, paints, solvents, and other wastes resulting from painting operations requires knowing which chemicals are in the paints and other products used, what is used to clean out the paint guns and lines, and how the solvent was used (also see Chapters 2.4.9.i and 2.4.9.h regarding solvents). If you have any questions about your waste generated from painting operations, call your WHMD district office (see Appendix C for phone numbers).

Identify if any of the paints and chemicals used are listed or characteristic hazardous waste. If the product ingredients are listed as an “F” waste, determine if the product was used as a cleaning solvent or as an ingredient in a paint product. If it was used as a solvent, then the “F” listing applies (see Chapter 2.4.9.i). Most common paint wastes include F005, F003, D001, D035, and occasionally D039. Paint formulations vary, but metals in paints such as cadmium, lead, and chromium may be in amounts that fail the TCLP. Paint filters and waste rags may also be a D001 waste because they are spontaneously combustible or contain enough ignitable liquid waste. Some paint and solvent recyclers are listed in Oils and Solvents category of the Recycled Materials Market Directory. Confirm they are a permitted and registered transporter (see Chapter 2.4.10).

Example 1: A paint booth operation at the facility uses a solvent product (that contained methyl ethyl ketone [MEK] and other listed solvents which resulted in a blend that was over 10 percent by volume of the product). This solvent was used to clean out the paint gun and line and directly sprayed into the filters. The waste solvent would be an F005 waste because the solvent was used for its cleaning properties. The hazardous waste mixture rule would apply to the paint booth filters and they would also be an F005 waste because the F005 solvent was sprayed onto the filters. If the solvent used to clean up the paint gun and line was sprayed into a container instead, the paint booth filters would not be a F005 waste but the used solvent would be a F005 listed hazardous waste.

Example 2: A paint product contained MEK and was used for its intended purpose as a paint. The waste paint and paint booth filter waste would not be an “F” listed waste as long as other listed solvents were not used as a gun and line cleaning agent. In this case, the MEK was not used as a solvent. However, it could be a D035 if the concentration met or exceeded 200 ppm in a liquid.

Example 3: A solvent based paint was thinned with lacquer thinner before being sprayed. Any leftover paint would probably be an ignitable characteristic waste. Paints and related wastes may also be regulated hazardous waste because the ingredients contained metals or other chemicals included in the "D" wastes in regulated concentrations or because it met ignitable characteristics.

See Chapter 1 or discuss with your AQD district office questions regarding VOCs emission calculations from painting operations. Also see Chapter 19 for information about the MIOSHA Standard - Part 76 Spray Finishing and Dip Tanks.

2.4.9.l Wastes Containing Silver and Other Precious Metals

Some industries may have wastes from photo or x-ray processing or other processes that generate wastes containing silver or other regulated wastes. If waste contains economically significant amounts of precious metals (silver, gold, platinum, palladium, iridium, osmium, rhodium, ruthenium, or any combination), it can be managed under alternative standards per rule R 299.9803. A facility is required to include the amount in determining its generator status, obtain a site identification number (see Chapter 2.4.4), include the waste in the hazardous waste report for large quantity generators (see Chapter 2.4.6), and the waste must be shipped using the Uniform Hazardous Waste Manifest (see Chapter 2.4.5). Additionally, these materials must not be accumulated speculatively, meaning that 75% must be sent for reclamation each calendar year.

The following summarizes requirements when these specific wastes are not managed under the precious metals rule.

Used fixer and other solutions:

Used fixer or other solutions may contain silver in amounts that can not be discharged to a wastewater treatment plant or septic system. It may be necessary to install a silver recovery unit. Before purchasing or leasing a unit, check with the waste water treatment plant for any local requirements to discharge processed liquids. Offsite shipments of the silver recovery unit cartridges and solutions by SQG and LQG must be done by a permitted and registered transporter and manifested as a D011 hazardous waste if the solution has a TCLP concentration of 5.0 milligrams per liter (mg/l) or more of silver.

Conditionally Exempt Small Quantity Generators (CESQG) may take the silver recovery unit cartridges and liquid solution waste to a destination facility themselves if meet conditions in Chapter 2.4.5, or hire a permitted and registered transporter to haul the liquid wastes. Liquid solutions, and cartridges that contain free liquids, that do not meet this silver concentration would be manifested and shipped using a 033L liquid industrial waste code.

Recovered silver flake which does not contain liquids is considered product and is not manifested or shipped as regulated waste when sent offsite. All shipments must comply with USDOT requirements regardless of the status under waste regulations.

Used developer and system cleaners:

Check if the waste water treatment plant will allow discharges of used developer and system cleaners. If not, check if the fixer recycler will accept the used developer. If the printer is not taking the used developer themselves to a destination facility, hire a permitted and registered transporter when shipping used developer off-site as liquid industrial waste and manifest the

load using a 033L liquid industrial waste code. Do not mix used fixer and developer.

Cleaners used in developer systems may contain chromium. Review the MSDS and other information to determine if the waste cleaner has a chromium TCLP concentration of 5.0 mg/l or more. If so, it would be considered a D007 hazardous waste. If possible, switch to a nonchromium cleaner.

Used film:

It is recommended used film be recycled for silver. Recyclers can be found in the Michigan Recycled Materials Market Directory under the Metal category. CESQG may dispose used film in the trash. SQG and LQG may also put it in the trash unless the used film has a silver TCLP concentration of 5.0 mg/l or more classifying it as a hazardous waste although this is unusual. Unused or expired film can normally be returned to the dealer or manufacturer.

2.4.9.m Electronic Waste including Computers

In Michigan consumer electronics can be managed as universal waste. Consumer electronics means devices containing an electronic circuit board, liquid crystal display, or plasma display such as those commonly found in homes and offices and these devices when used in other settings. Common electronic wastes includes computers, printers, telephones, televisions, and other electronic devices. Label the devices or the containers with “Universal Waste Electronics” or “Universal Waste Consumer Electronics” and meet the applicable universal waste handler requirements (see Chapters 2.4.1.c, 2.4.4, 2.4.5, 2.4.7, and 2.4.8).

Universal waste handlers of electronics may do any of the following and still be a handler:

- Repair the device for potential direct reuse.
- Remove other universal waste e.g. batteries from the device
- Remove individual modular components for direct reuse.

If the wastes are not recycled, then it is necessary to determine if it is hazardous waste.

The 2008 rule revisions included clarifications about recycling Cathode Ray Tubes (CRTs). See the “**Electronic Equipment**” publication for more information.

2.4.9.n Waste containing radioactive materials

Some companies may generate “mixed waste” which contains both hazardous waste and source special nuclear, or byproduct material subject to the Atomic Energy Act of 1954. This waste is managed under both the hazardous waste and the radioactive material regulations described in Chapter 10. See R 299.9822 regarding low-level mixed waste (LLMW) and R 299.9823 regarding LLMW and naturally occurring and/or accelerator-produced radioactive materials (NARM). Discuss requirements with the WHMD Radioactive Materials and Standard Unit at (517) 241-1275 and WHMD district office.

See Chapter 10 for management of exit signs and industrial smoke detectors.

2.4.9.o Spent Antifreeze

Used antifreeze (ethylene glycol and propylene glycol) may be removed from transportation equipment or cooling/heating systems or the chemicals may have been used for deicing aircraft. Spent antifreeze may be either hazardous or nonhazardous waste depending on its characteristics. There have been increased incidents of antifreeze meeting hazardous waste toxicity characteristics when removed from radiators and equipment that contained lead solder. As such, the universal waste antifreeze was added in the 2008 rule amendments. Nonhazardous antifreeze is managed as liquid industrial waste. See the *Antifreeze* guidance in the DEQ publication center at **www.deq.state.mi.us/pubcenter** for more information on management requirements.

2.4.9.p Scrap Metal

Certain types of scrap metal is excluded from the hazardous waste regulations when it is recycled. Scrap metal is defined as "bits and pieces of metal parts such as bars, turnings, rods, sheets, wire, or metal pieces which may be combined together with bolts or by soldering such as radiators, scrap automobiles, and railroad box cars, which when worn or superfluous may be recycled." It can also include solder sponges that can be recycled for scrap metal.

Accumulation prior to recycling would be limited to the speculative accumulation conditions under the solid waste regulations (see Chapter 2.1).

To find recyclers, look in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd** under the Metals category or look in the yellow pages under the heading “Scrap Metal.” A guidance for scrap metal recycling is under development to summarize the recycling facility requirements. If you have precious metals, see Chapter 2.4.9.l.

2.4.10 Selecting a Transporter and TSDF

Because transporter and treatment, storage and disposal facilities (TSDF) services and costs are highly varied, you should contact and interview several facilities to obtain price estimates before making a selection. Transporters may be independent companies or may be affiliated with a TSDF. There are requirements for transporters hauling either hazardous waste or liquid industrial waste. A transporter needs to be registered and permitted under both uniform transporter programs to haul either of these wastes.

You might want to tour the TSDF yourself to see its operations. Remember that, as the generator, you are ultimately responsible for how your waste is transported and disposed, so it is wise to choose a company on more than price. Use the following list of questions as a starting point for your interviews, and compare the companies' responses before making your selection. It is important to select a waste transporter and TSDF that you are comfortable doing business with and who provides the best services for your particular circumstances, at a reasonable price.

Questions to Ask Prospective Transporters and TSDFs

1. Is the hazardous waste transporter currently permitted and registered in Michigan? Does the TSDF where the waste is being taken to have a current operating license and/or has the liquid industrial waste designated facility notified the WHMD of their activities? You may search the Waste Data System for transporters, TSDFs, and liquid industrial waste designated facilities. Lists of permitted and licensed transporters and TSDFs are also available via the WHMD web site **www.michigan.gov/deqwaste**. Another option is look for companies in the telephone directory's yellow pages under the heading "Waste Reduction, Disposal, and Recycling Service."

   A TSDF can accept only those types of wastes allowed by its permit or operating license. Special fees may be charged for small quantities of hazardous waste requiring extra handling by the facility.

2. Is the transporter currently permitted and registered to transport liquid industrial waste in Michigan? Is the waste being taken to a destination facility that has notified the WHMD of their activities and are operating according to the liquid industrial waste regulations? You may search the Waste Data System for companies that have notified as being liquid industrial waste designated facilities and transporters. Lists of permitted and licensed transporters are also available via the WHMD web site **www.michigan.gov/deqwaste**. Another option is to use the telephone directory's yellow pages. To find companies that deal with liquid industrial waste, look under the heading "Waste Reduction, Disposal, and Recycling Service," or for used oils look under the heading "Oils-Waste."

3. What type and amount of insurance does the transporter or TSDF carry? Permitted and registered transporters are required to have insurance coverage to cover accidents and environmental spills. You may want to ask for proof of current insurance coverage for your records.

4. If you are hiring an independent transporter, find out what TSDF the transporter uses for your type of waste. Do they use a transfer facility? If the waste is going to a treatment facility before disposal, where is the ultimate place of disposal for the treated wastes?

5. Does the transporter or the facility offer special services for small volumes of waste? Some transporters might not service Small Quantity or Conditionally Exempt Small Quantity Generators.

6. Does the transporter or TSDF initially prepare the waste manifests or will they assist you by reviewing manifests you prepare for correct and complete information (see Chapter 2.4.5)? Does the TSDF provide the land ban restriction notices (see Chapter 2.4.5.c) and do they help complete them?

7. Does the transporter test used oil prior to picking up the waste or do they require you to do any testing (see Chapter 2.4.9.a)? Does the TSDF require specific tests or laboratories to be used (see Chapter 2.4.2).

8. Is there anything additional to the labeling requirements you must do before your waste is picked up by the transporter or accepted at the TSDF? Some facilities have their own requirements as to how they accept waste material. For example, some companies will not accept hazardous waste in drums even though this is a common storage and only pick up bulk loads.

9. Does the transporter or TSDF serve other businesses similar to yours? If so, obtain telephone numbers and contact these companies to evaluate the services they received.

10. Does the transporter deliver waste to the treatment, storage, or disposal facility the same day that it's picked up? If not, ask questions about the company/location where the waste will be stored. Hazardous waste must reach its final destination within 10 days.

11. What steps does the transporter or TSDF operator take to avoid spills or leaks and minimize the facility's own legal liability? You may want to note for your records the method of temporary waste storage used at a treatment or recycling facility. If your waste is going to a hazardous waste landfill, ask about their leachate control and ground water monitoring provisions. Use this information when comparing companies. A company that costs more to take your waste but practices an extensive environmental protection program may actually be cheaper in the long run than a company that initially costs less but does not practice adequate environmental protection. If contamination occurs, you can be held financially responsible for the site cleanup costs.

12. Have any violations of state regulations occurred? You may also search the Waste Data System for information regarding a company's compliance history. Call the appropriate WHMD district office to discuss transporter or TSDF violations. Transporter and TSDF inspection files are kept at the WHMD district office responsible for the area where the business is located. If you want to review the files, contact the district office to confirm the appropriate office and set up an appointment.

13. Will they enter into a written contract with you? For liability protection, it is a good idea to have a written contract that clearly identifies what specific services the company will provide. Be cautious of firms who do not want to offer a written contract for services.

Conditionally Exempt Small Quantity Generator are not required to hire a permitted and registered hazardous waste transporter or dispose of hazardous waste at a TSDF, but it must be disposed of at a facility that can legally accept the waste. It is recommended that it be sent to a hazardous waste disposal facility or waste recycler. In a few Michigan areas, the local household hazardous waste collection programs accept hazardous waste from Conditionally Exempt Small Quantity Generators for a fee. A list of local collection sites is available at **www.michigan.gov/deqrecyling** . Your waste that is not considered a liquid waste (passes the paint filter test) can be disposed of at a sanitary landfill if the landfill authority will accept it. Your liquid waste must be hauled by a permitted and registered transporter, unless you haul your own generated waste and meet the requirements outlined in Chapter 2.4.5.a.

2.4.11 Disposing Hazardous Waste On-Site

You may NOT dispose of hazardous waste on your site unless you have obtained a construction permit or operating license for disposal from the WHMD. Under limited circumstances, it might be legal to dispose of certain types of waste into a sanitary sewer or on your site without a TSDF permit. See Chapter 2.4.1.d.3 and Chapter 3 on wastewater management for more information. Contact your local wastewater treatment facility and your WHMD district office for information about which wastes from your facility can be disposed of in this manner.

2.4.12 Employee Emergency Training

In addition to following training requirements, see Chapter 6 for contingency planning, release reporting, and response requirements.

HAZARDOUS WASTE

This section discusses emergency training requirements under the hazardous waste regulations. Training is required for all employees who are involved with hazardous waste management, such as personnel at the areas of generation, their supervisors, hi-low drivers who move the hazardous waste, shipping dock employees, emergency coordinators, or anyone else who handles the waste. You must tailor your training specifically to the hazardous waste procedures relevant to your facility and employee involvement.

See Chapter 4.4 for training requirements under the transportation regulations including manifest training. See Chapters 13 and 23 for information about the MIOSHA regulations that require employees to be trained on proper waste handling and how to effectively respond to emergencies in a manner that protects their safety and the environment.

Hazardous waste training involves familiarizing employees with emergency procedures; emergency equipment; emergency systems (such as communication or alarm systems, response to fires or explosions, shutdown of operations, response to unplanned sudden or non-sudden releases of hazardous waste); and their roles in implementing the hazardous waste contingency plan relevant to their positions.

Some common hazardous waste training violations include:

- ✓ Missing or incomplete documented records of required training for Large Quantity Generators:
  - Job title omitted
  - Job description omitted
  - Employee name omitted
- ✓ Missing written training description for Large Quantity Generators
- ✓ Using another required emergency training program which does not have a portion clearly devoted to the hazardous waste requirements
- ✓ Failing to have employees trained annually for Large Quantity Generators

TABLE 2.8: HAZARDOUS WASTE TRAINING REQUIREMENTS			
	CESQG	**SQG**	**LQG**
Training type	No specific requirements under hazardous waste rules	Informal training or with other training[1]	Classroom setting or on the job instruction with written description of training program type and amount of training[1]
Written training records	No specific requirements	Recommended as documentation of training session	Required written records. ✓ For employees who left company, keep records at lease 3 years from last day worked. ✓ For current employees, keep records until facility closes.
Training Schedule	No specific requirements	No specific requirements	✓ Initial training within 6 months of starting job involving hazardous waste ✓ Annual training (during calendar year, not necessarily 1 year from date of initial training)
Trainer Qualifications	No specific requirements	No specific requirements. May be someone in-house or hire outside trainer	Someone with significant experience in hazardous waste management. May be someone in-house or hire outside trainer.
Manifest & Transportation Training	This is required under USDOT regulations. See Chapter 4.4.10.		
The above summarize requirements under the hazardous waste regulations. Facilities may also be subject to MIOSHA requirements for training and record keeping which are not included here.			
[1] This training can be combined with other training sessions as long as a portion of the training is clearly devoted to hazardous waste requirements. Training under the Hazard Communication Employee Right-to-Know Standard (Right-to-Know) alone, as required by MIOSHA (see Chapter 13), is not sufficient to meet the hazardous waste training requirements. Review the WHMD **"Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste"** handout for more information on hazardous waste training requirements.			

UNIVERSAL WASTE

Small Quantity Handlers and Large Quantity Handlers must inform employees who handle or have responsibility for managing universal waste about the proper handling and emergency procedures relative to their responsibilities and appropriate for the type of universal waste handled at that facility.

2.5 Medical Waste

The management of medical waste is directly or indirectly regulated under federal, state, and some local statutes, rules, and guidelines.

- The WHMD, Medical Waste Regulatory Program oversees Michigan's Medical Waste Regulatory Act [Part 138 of Michigan's Public Health Code, Public Act 368 of 1978, as amended (Act 368)] and administrative rules. The Act mandates how generators of medical waste must manage their medical waste from point of generation to disposal.
- The EPA has regulations and has issued guidelines for land disposal and incineration facilities handling infectious wastes. The guidelines list minimum performance criteria and outline recommended management procedures.
- The USDOT regulates packaging, labeling, transportation, and shipping of medical waste on an interstate basis (see Title 49, Part 171 of the Code of Federal Regulations [49 CFR 171]) along with the Michigan State Police, Motor Carrier Division. Federal guidelines and regulations are basically minimum standards that have been either adopted by Michigan statute, or Michigan has established parallel statutes and rules that are more comprehensive than the federal regulations.
- The MIOSHA Standard - Part 554 "Bloodborne Infectious Diseases" (R 325.70001 through R325.70018), administered by the Department of Labor and Economic Growth also addresses the handling of liquids, semi-liquid blood, or other potentially infectious materials (see Chapter 22).
- For local requirements, contact the local health department.

Medical waste includes:

- Cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production wastes, discarded live and attenuated vaccines, culture dishes, and related devices.
- Liquid human and animal waste, including blood and blood products and body fluids, but not including urine or materials stained with blood or body fluids.
- Pathological waste.
- Contaminated wastes from animals that have been exposed to agents infectious to humans, these being primarily research animals.
- Sharps. If employees ask about management and disposal options for sharps (needles, syringes, and lancets used for checking blood glucose levels) used in their homes, refer them to the publication "**The Point Is…Needles Hurt**" at **www.deq.state.mi.us/documents/deq-ead-tas-newsharps.pdf**

Medical waste may be infectious to humans and must be handled and treated with caution. Manufacturing facilities that may generate medical waste include pharmaceutical companies, research facilities that manufacture vaccines and drugs, and medical equipment manufacturers with testing programs. Companies with in-house health care facilities may also be subject to the regulations.

Additional information is available at **www.michigan.gov/deqmedwaste**. Questions about medical waste can be directed to Andrew Shannon at (517) 335-1146 or send e-mail to **MedicalWaste@michigan.gov**.

2.5.1 Registration and Record Keeping Requirements

Registration of medical waste producing facilities is required under Section 13815 of the Act. Contact the Medical Waste Regulatory Program to request the **"Initial Application for Registration as a Producing Facility of Medical Waste" (EQP 1700-1)** form. Registrations are good for three years and renewal notices are automatically sent to registrants prior to the expiration of their current registration.

Facilities that employ a full time nurse and/or doctor, or operate a health clinic, that provides medical services to employees and generates medical waste would be required to register.. Discuss requirements about the medical waste on-site management requirements with the Medical Waste Program.

A manufacturer that has incidental amounts of medical waste from an employee accident or provides a sharps container and/or first aid kits for employee use is not considered a medical waste producing facility. It is recommended, however, that this waste be treated as a biohazard, put in red bags, and picked up by a medical waste hauler. A list of companies that offer medical waste disposal services is available at **www.michigan.gov/deqmedwaste**

2.5.2 Medical Waste Management Plans

A medical waste management plan is required and must be maintained by all medical waste producing facilities. Major components of the plan must include the following:

- The types of medical waste handled.
- The use and methods of on-site or off-site storage.
- The use of on-site or off-site incineration or disinfection services.
- The use of sanitary landfills, cemeteries, or other final disposal sites.
- The business name of solid waste haulers who transport medical waste for the producing facility's medical waste.
- The measures to minimize exposure of the facility's employees to infectious agents when handling and disposing of the facility's medical waste.

The medical waste plan must be updated whenever any of these changes occur, and the plan must be readily available for inspection. A **"Sample Medical Waste Management Plan"** is available from the Medical Waste Regulatory Program.

WHERE TO GO FOR HELP

SUBJECT: **Compliance Assistance**

CONTACT: DEQ, Environmental Science and Services Division, Compliance Assistance Unit
(800) 662-9278
www.michigan.gov/deq (select "Key Topics", "Environmental Assistance"

SUBJECT: **Confidential and Free Waste Reduction Assessments**

CONTACT: DEQ, Environmental Science and Services Division, RETAP Coordinator
(800) 662-9278
www.michigan.gov/deqessd (scroll down to "Retired Engineers Technical Assistance Program" under Technical Assistance heading)

SUBJECT: **Hazardous waste and liquid industrial waste permitted and registered transporters**

CONTACT: DEQ, Waste and Hazardous Materials Division, Hazardous Waste Program
(734) 432-1256
www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste Transporters")

SUBJECT: **Hazardous waste licensed treatment, storage, and disposal facilities**

CONTACT: DEQ, Waste and Hazardous Materials Division, Hazardous Waste Program
(517) 373-9875
www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste" then "Hazardous and Liquid Industrial Waste Management")

SUBJECT: **Hazardous and liquid industrial waste manifests**

CONTACT: For questions about manifesting requirements:
DEQ, Waste and Hazardous Materials Division, District Office
See Appendix C for a listing of district office telephone numbers
www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste" then "Hazardous and Liquid Industrial Waste Management")

For questions about copies of manifests submitted to DEQ:
DEQ, Waste and Hazardous Materials Division, Manifest Unit
(517) 373-1217

Look up facility hazardous waste manifests in Waste Data System at www.deq.state.mi.us/wdspi

PUBLICATIONS:

1. Manifest Tracking Form
2. Large Quantity Generator's Tracking System for Hazardous Waste Manifests
3. Small Quantity Generator's Tracking System for Hazardous Waste and All Liquid Industrial Waste Shipments

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SUBJECT: **Hazardous waste site identification number (EPA number)**

CONTACT: DEQ, Waste and Hazardous Materials Division, Notification Coordinator
(517) 335-5035
www.michigan.gov/deqwaste (select "Michigan Site Identification Form and Directions EQP5150")

PUBLICATIONS:

1. Site Identification Form (EQP 5150)

SUBJECT: **Hazardous, liquid, and solid waste regulation questions and publications**

CONTACT: DEQ, Environmental Science and Services Division or WHMD District office
(800) 662-9278
www.deq.state.mi.us/pubcenter

PUBLICATIONS:

1. Directory of Environmental Testing Laboratories
2. Emergency Information Poster
3. Manifest Tracking Log
4. Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste
5. Recycled Materials Market Directory
6. Required Weekly Hazardous Waste Maintenance Checklist
7. Electronic Equipment
8. Electric Lamps and Small Ballasts
9. Universal Waste
10. Used Oil
11. Antifreeze
12. Nonhazardous Waste Holding Tanks
13. Emptying Tanks or Containers
14. Waste Characterization

SUBJECT: **Hazardous Materials Transportation**

CONTACT: U.S. Department of Transportation
(800) 467-4922 or (517) 377-1866
http://hazmat.dot.gov

Michigan State Police, Traffic Safety Division
(517) 336-6580
www.michigan.gov/msp

Michigan Center for Truck Safety
800-682-4682
www.truckingsafety.org

SUBJECT: **Household Hazardous Waste Collection Programs**

CONTACT: DEQ, Environmental Science and Services Division
(800) 662-9278
www.michigan.gov/deqreswastecontacts or www.earth911.org

SUBJECT: **Material Safety Data Sheets**

WEB SITE: www.hazard.com
www.reade.com/MSDS_Links.html

SUBJECT: **Medical Waste Program Questions**

CONTACT: DEQ, Waste and Hazardous Materials Division, Medical Waste Program
(517) 335-1146 or (517) 241-1320
e-mail: MedicalWaste@michigan.gov
www.michigan.gov/deqmedwaste

PUBLICATIONS:
1. Initial Application for Registration as a Producing Facility of Medical Waste (EQP 1700-1) (not available online)
2. Sample Medical Waste Management Plan

SUBJECT: **Oil filters recycling**

CONTACT: Oil Filters Manufacturing Council
(800) 993-4583
www.filtercouncil.org

PUBLICATIONS:
1. How to Choose a Filter Management Service
2. Proper Hot Draining Steps
3. Recycling Used Oil Filters at the Shop

SUBJECT: **PCB information**

CONTACT: EPA Region 5
(312) 886-1334
www.epa.gov/pcb

SUBJECT: **Scrap tire storage and disposal; scrap tire registered haulers and collection sites**

CONTACT: DEQ, Waste and Hazardous Materials Division, Scrap Tire Program
(517) 335-4035
www.michigan.gov/deqwaste (select "Scrap Tires")

SUBJECT: **Solid waste landfills**

CONTACT: DEQ, Waste and Hazardous Materials Division, District office
See Appendix C for a listing of district office telephone numbers
www.michigan.gov/deqwaste (select "Solid Waste" then "Solid Waste Facilities" for map and lists of landfills)

SUBJECT: **Solid waste planning agency contacts**

CONTACT: DEQ, Waste and Hazardous Materials Division
(517) 335-4035
www.michigan.gov/deqwaste (select "Solid Waste")

SUBJECT: **US EPA waste compliance assistance publications**

WEB SITE: www.epa.gov/epaoswer/osw/index.htm

PUBLICATIONS:
1. RCRA Orientation Manual
2. RCRA, Superfund, and EPCRA Hotline Training Modules
3. RCRA Online

SUBJECT: **Waste recycling and material exchange options**

CONTACT: DEQ, Environmental Science and Services Division, Recycling Coordinator
(800) 662-9278
www.michigan.gov/deqrecycling

PUBLICATIONS:
1. Recycled Materials Market Directory
2. Materials Exchange
